PAPER TRADE
JOURNAL

HARDWOOD PULPING

Beginning a symposium of papers written by experts for Amherst Conference.

October 15, 1954

WOOD PULP

G

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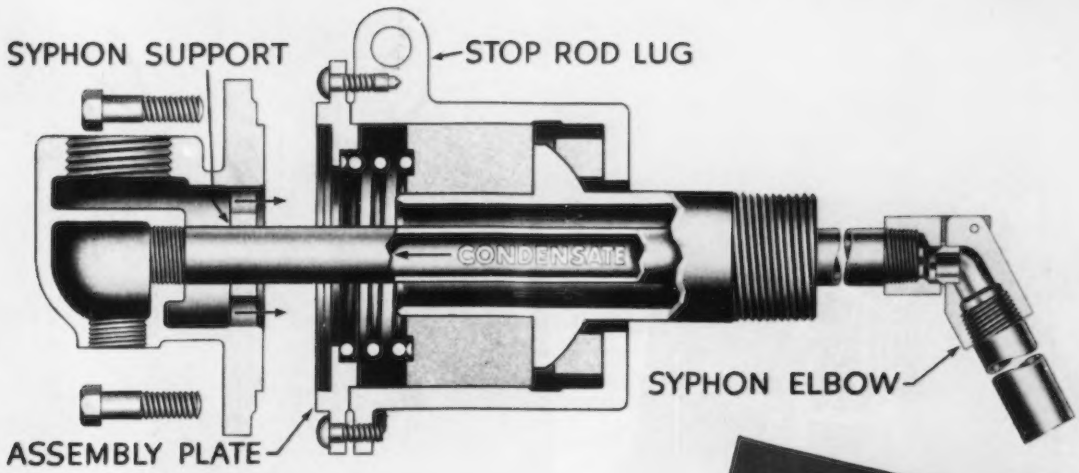
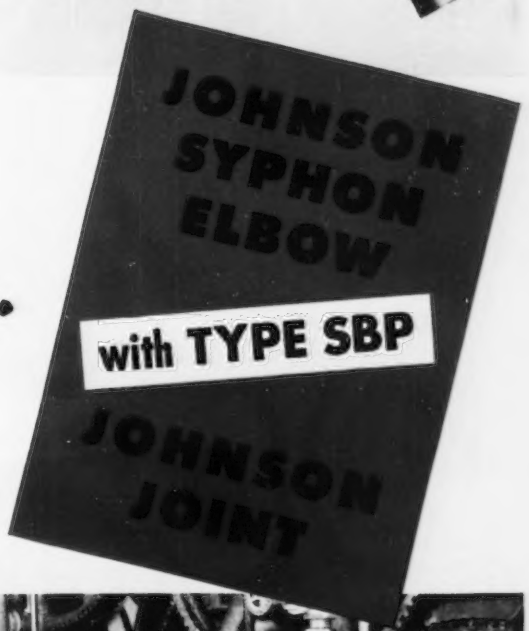


Straightens out a lot of troubles...

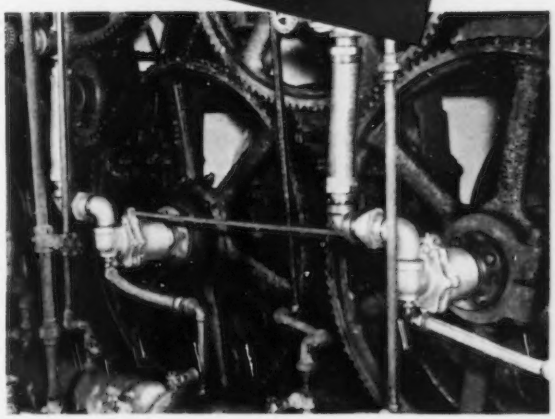


Ordinary curved syphon pipes aren't easy to form in the first place. It's hard work putting them in position, and sometimes tougher keeping them there.

The Johnson Syphon Elbow shown at right above straightens out these difficulties completely. It permits the use of straight pipe for the syphon drainage line. It is hinged to pass in or out of the roll easily, yet seats itself tightly when in position.

Perfect team mate for this syphon elbow is the Type SBP Johnson Joint shown at left in the illustration. It is packless, self-lubricating and self-supporting. It has a special assembly plate which holds internal parts in position when head is removed.

90-day Trial! — Several thousand installations of this new Syphon Elbow have proved it a complete success on paper machines. If you'd like to try it in your own mill, we will be glad to supply a couple of units for a 90 day trial, without any cost or obligation on your part.



Products of The Johnson Corporation
828 Wood St., Three Rivers, Michigan
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Direct Operated Solenoid Valves • "Instant" Steam Water Heaters

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The most outstanding product of the Black-Clawson Company is its engineering and design service. Every Black-Clawson representative is a specialist in one or more of the phases of this complex business of making paper. Regardless of whether his specialty is stock preparation equipment, paper machine design or special converting machinery, he must also contribute a wealth of data and information on everything from pulping to converting.

This vast store of knowledge accumulated during the many years Black-Clawson has been building everything for the paper mill, is unequaled anywhere. And, the men who carry the "million dollar briefcase"—the finest paper mill machinery engineers in the world—keep adding to this store of knowledge every day as they serve paper mills all over the world.

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HAMILTON, OHIO • MIDDLETOWN, OHIO • FULTON, NEW YORK
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REMEMBER THESE DATES

OCT. 18-21: TAPPI Engineering Conference, Benjamin Franklin Hotel, Philadelphia, Pa.

OCT. 18-22: 42nd National Safety Congress and Exposition, Conrad Hilton, Congress, Morrison and La Salle Hotels, Chicago, Ill.

NOV. 9-10: National Paperboard Assn. Annual Meeting, Waldorf-Astoria Hotel, New York, N. Y.

NOV. 17-19: TAPPI Corrugated Containers Conference, General Oglethorpe Hotel, Savannah, Ga.

FEB. 20-25: APPA Annual Meeting, Waldorf-Astoria Hotel, New York, N. Y.

FEB. 21-24: TAPPI Annual Meeting, Commodore Hotel, New York, N. Y.

MAY 18-21: Third Western International Meeting of the Pulp and Paper Industry, Empress Hotel, Victoria, B. C.

PAPER TRADE JOURNAL

Published Weekly Since 1872

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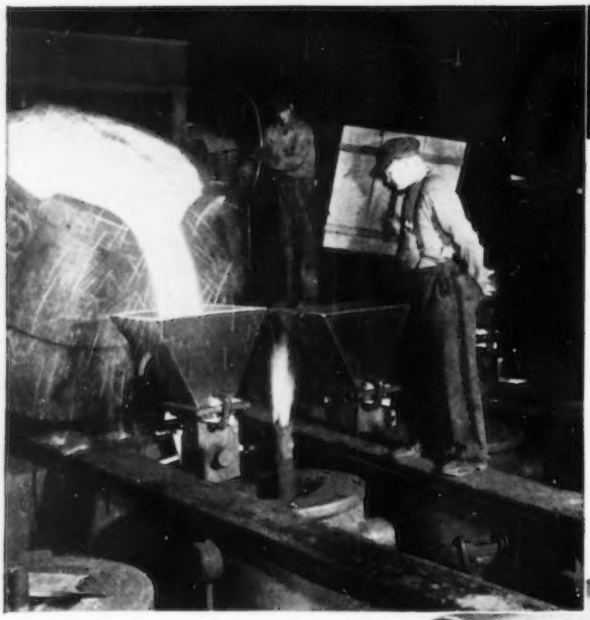
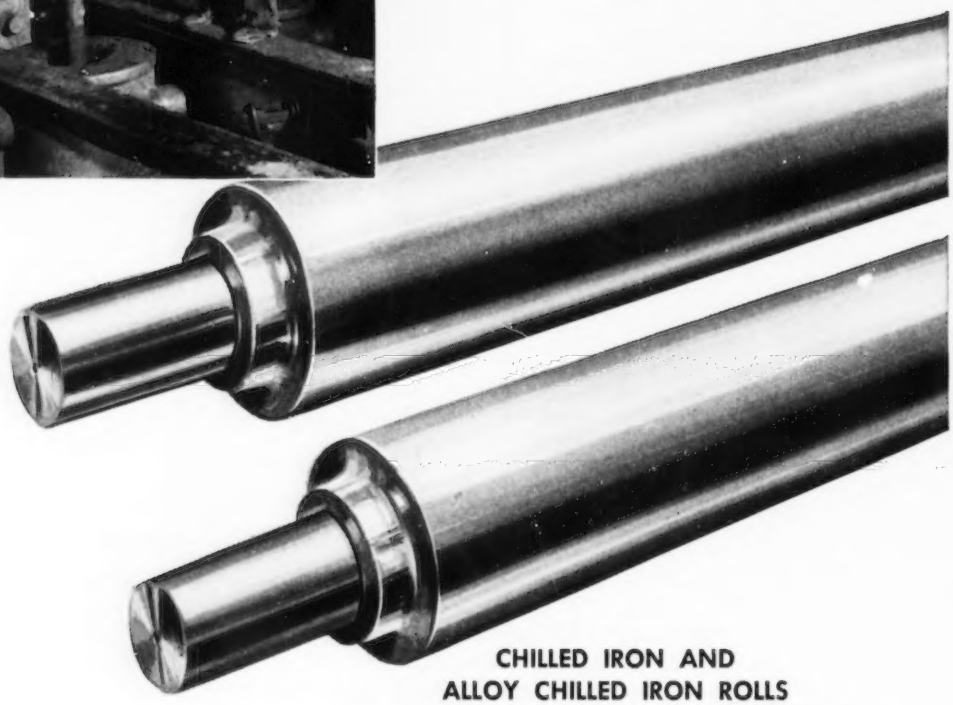


ROLLS

RIGIDLY SUPERVISED

from pouring pit to paper mill



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Comprehensive technological experience, advanced engineering skill, modern production facilities and recognized leadership in the design and construction of rolls are your guarantee of complete satisfaction. Lobdell Plain Chilled Iron Rolls have a uniformly hard surface highly resistant to abrasion and deformation under load. They give longer service for machine calendering. Alloy Chilled Iron Rolls for water finish or high pressure stacks are harder and more resistant to corrosion and abrasion than ordinary rolls.

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1954

from *Evadale*

IN THE "PINEY WOODS" OF EAST TEXAS comes

A NEW NAME IN PULP AND PAPER

Next month at Evadale, Texas, East Texas Pulp and Paper Company will begin the production of fine quality pulp and paperboard from East Texas Pine and gum.

Production will consist of bleached kraft market pulp and bleached sanitary food board. A large percentage of the pulp will be marketed; the rest will be used in East Texas' own mill for production of paperboard for milk-container, carton, plate-and-tray, tag, file-folder, pail, milk-bottle-hood and similar stock, as well as bleached bag and other types of heavy weight bleached kraft paper.

The Mathieson chlorine dioxide bleaching system used produces a desirable "high brightness" pulp, that retains maximum strength. In addition, our special technique of blending short-fibered hardwood pulp and long-fibered softwood pulp in any desired percentages, and the use of a completely new and revolutionary machine coating assure paperboard customers the industry's finest printing surface.

PULP CUSTOMERS... may choose between two grades of market pulp: a long-fibered quality from pine and a short-fibered one from gum. Both grades are chlorine-dioxide bleached to a high brightness and exceptionally clean, yet retain maximum strength.

PAPER CUSTOMERS... will be assured products that meet the most exacting requirements as to workability, uniformity, cleanliness, printability, strength—all at competitive prices.

QUICK DELIVERY by rail or truck—emergency orders will be handled on an individual basis.

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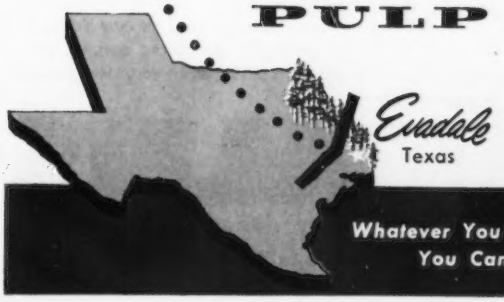

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MODERNIZE

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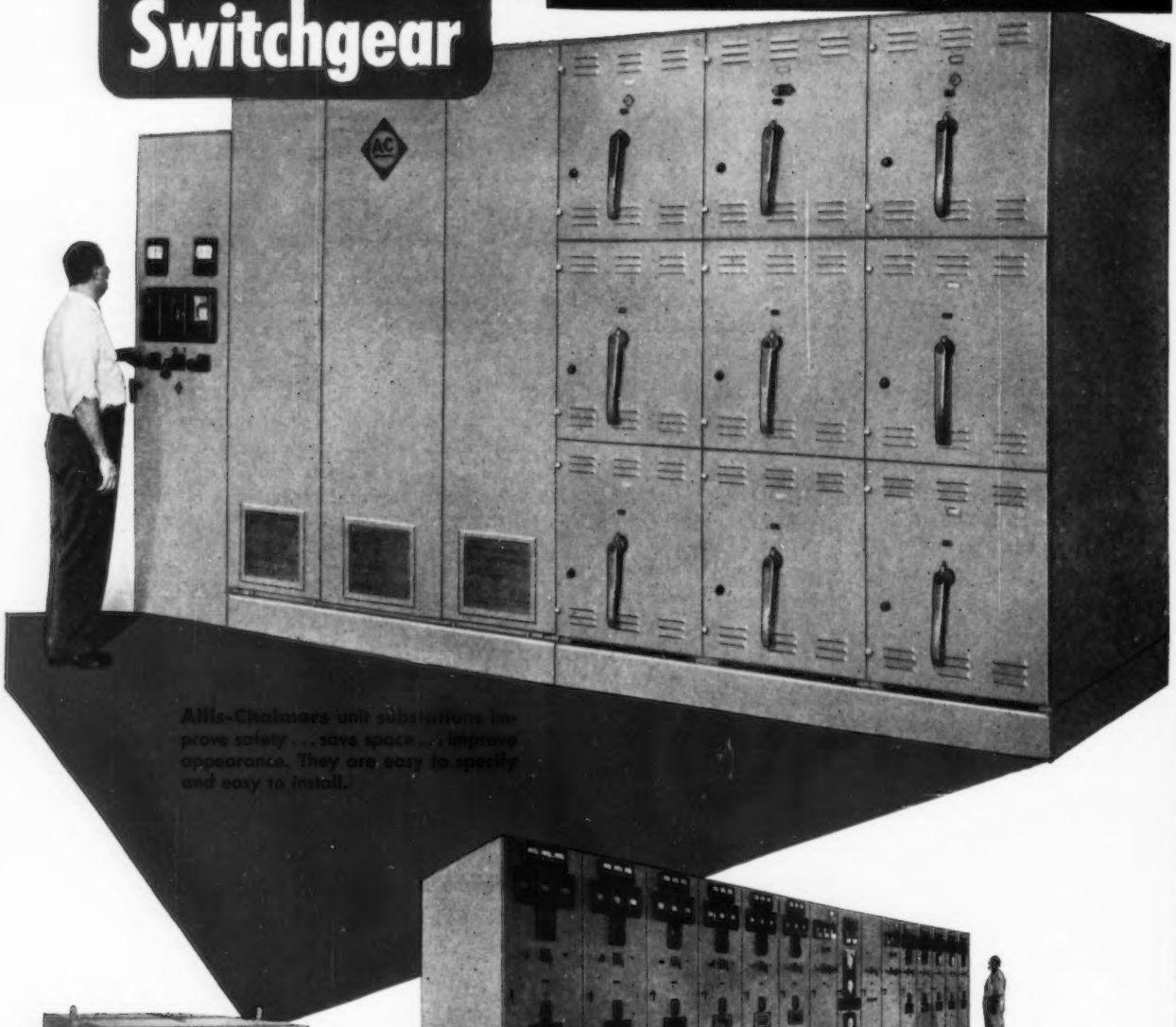
PROGRESS IN

Switchgear



Allis-Chalmers unit substations improve safety . . . save space . . . improve appearance. They are easy to specify and easy to install.

Individually enclosed low voltage air circuit breakers like this have wide application in industry for protection of motors, lighting circuits, and transformers.

Metal-clad switchgear provides safe, compact control and circuit protection. Special circuit schemes in standard structures can be provided to assure uninterrupted power.

ALLIS-

ELECTRICALLY

with Allis-Chalmers Switchgear

when voltage is low

Low voltage at motors is usually caused by overloaded feeders or long runs of low voltage cable. Undervoltage reduces motor torque; increases production time on machine tools; increases time required by heating elements.

when space is limited

Older types of switchgear often use critical production floor space. Replace with compact Allis-Chalmers switchgear. It fits anywhere . . . on the roof . . . on a balcony . . . in the basement . . . or outside near the building.

when cable runs are long

Long low voltage cable runs are wasteful. Savings realized by elimination of long low voltage feeders include cable cost, installation cost and cost of power lost. These savings alone will often justify modern Allis-Chalmers load center unit substations.

when relocation costs are high

Equipment relocation costs are sometimes excessive. Savings in relocation costs due to product changes or production modifications can be made by using Allis-Chalmers switchgear, bus duct and unit substations. Everything is salvageable!

when automation is used

If automation or other continuous processing is used, power interruptions cannot be tolerated. Standard Allis-Chalmers metal-clad switchgear is designed to accommodate special circuit schemes, such as ring bus and transfer bus, to assure uninterrupted flow of power.

when load growth is fast

System capacities now exceed breaker ratings in many plants. Breakers have become obsolete due to increased use of power. These breakers may be inadequate to handle a short circuit, with resulting possible danger to plant personnel and equipment.

Let experienced Allis-Chalmers switchgear engineers help you solve your distribution problems. Call your nearby Allis-Chalmers district office, or write Allis-Chalmers, Milwaukee 1, Wisconsin.

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Milwaukee 1, Wis.

Please send me New Load Center Substation Booklet 11B6285B.

Name .....

Title .....

Firm .....

Street .....

City ..... State .....

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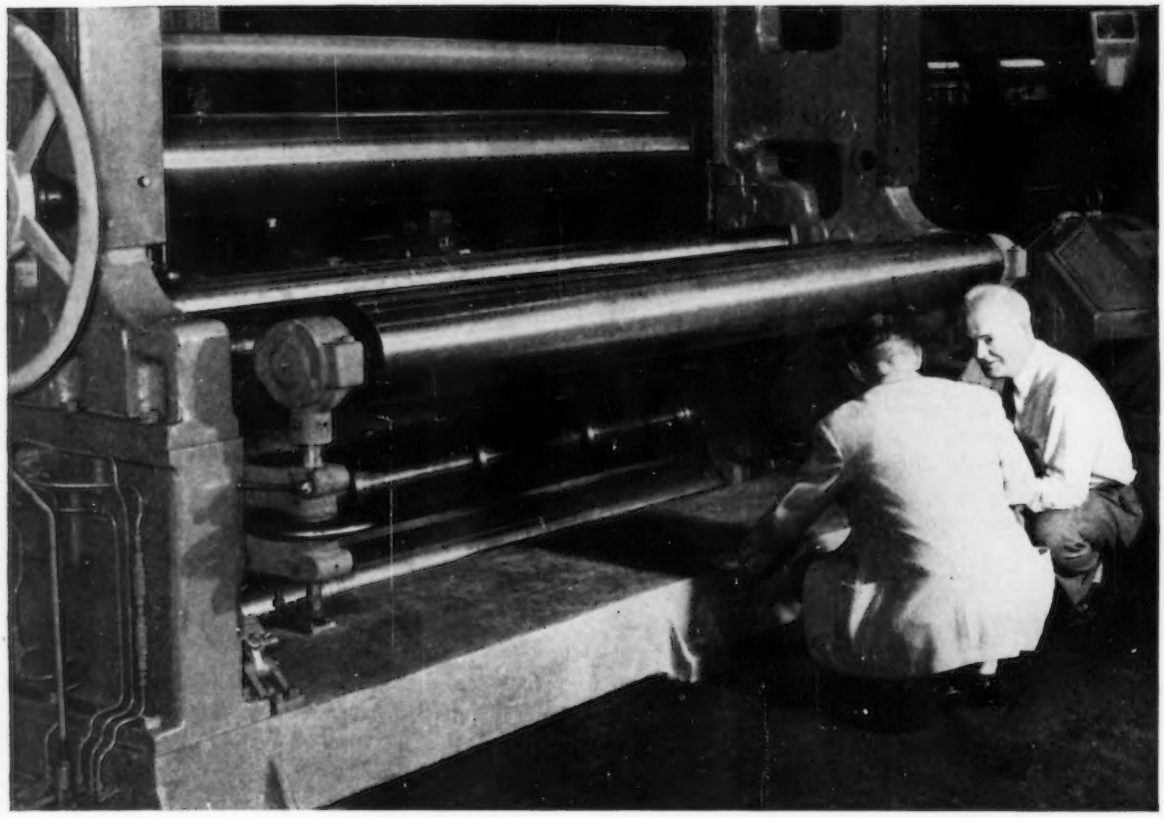

Why **Langston Slitters & Winders** hold steady with a 3-ton roll whirling at full speed

V-Belt Drives to the Rider Roll and Winding Drums. Far more efficient than flat belts for a given cross-section size. Belts need no lubrication, give smooth drive, run quietly.

The massive bedplate and side frames on this Langston Model DA are important reasons why Langston Slitters & Winders work so well and last so long. Every Langston machine has a bedplate and side frames which, like this one, are more than husky enough to hold the machine steady under full load.

This extra sturdiness makes Langston machines easier to align, and insures that they will remain steady through a long life of hard use. With the weights these machines carry, it doesn't pay to risk unsteadiness—even at *moderate* speeds. If you plan to operate your winders at *high* speeds, you need all the sturdiness Langston construction gives you.

Clean-cutting Langston Slitters & Winders use shear-cut slitters throughout the line—standard equipment without special order or extra cost. V-belt drives to the rider roll and between winding drums with variable pitch sheave permit easy adjustment of speed to suit grade of paper, or roll density required.

Langston Slitters & Winders are available in four standard models, in sizes from 40 to 196 inches and speeds to meet your specifications. These machines are now being produced at an accelerated rate, but the demand is exceptional. Prevent disappointment by planning ahead and placing your order early. For full information, write Samuel M. Langston Co., Camden 4, N.J.

LANGSTON *Leadership...by design*

happy?

If you're the wax user who'd like to be happier over better production schedules, higher product quality and lower costs, ask your Cities Service representative about the improved line of Pacemaker waxes or write Cities Service Wax Dept., Sixty Wall Tower, New York 5, N.Y.

CITIES SERVICE
QUALITY PETROLEUM PRODUCTS

Interior of Lukens Inconel-Clad steel digester, manufactured for Crossett Paper Mills by Wyatt Metal and Boiler Works, P.O. Box 3052, Houston 1, Texas. Since its installation some 3½ years ago, annual corrosion is nil.

Digester corrosion rate:
Inconel, nil—Carbon Steel, 62 mils

Consider the experience of Crossett Paper Mills, Crossett, Ark.

They have used various forms of carbon steel and different alloys including Lukens Inconel-Clad for digesters.

Eight mild steel digesters show an average corrosion rate of 62 mils per year. The Inconel-Clad digester shows no measurable corrosion.

The evidence is clear, not only in the Crossett installation but in several other well known mills.

Judging by mill experience in general, Inconel shows greatly improved resistance to alkaline pulp digester corrosion as compared to other materials of construction.

If you want the latest data for *any* type of corrosion-resisting equipment for alkaline pulping processes, write our Corrosion Engineering Section. They will help you work out the solution for your specific conditions.

The INTERNATIONAL NICKEL COMPANY, Inc.
67 Wall Street New York 5, N. Y.

INCO TRADE MARK **Nickel Alloys**

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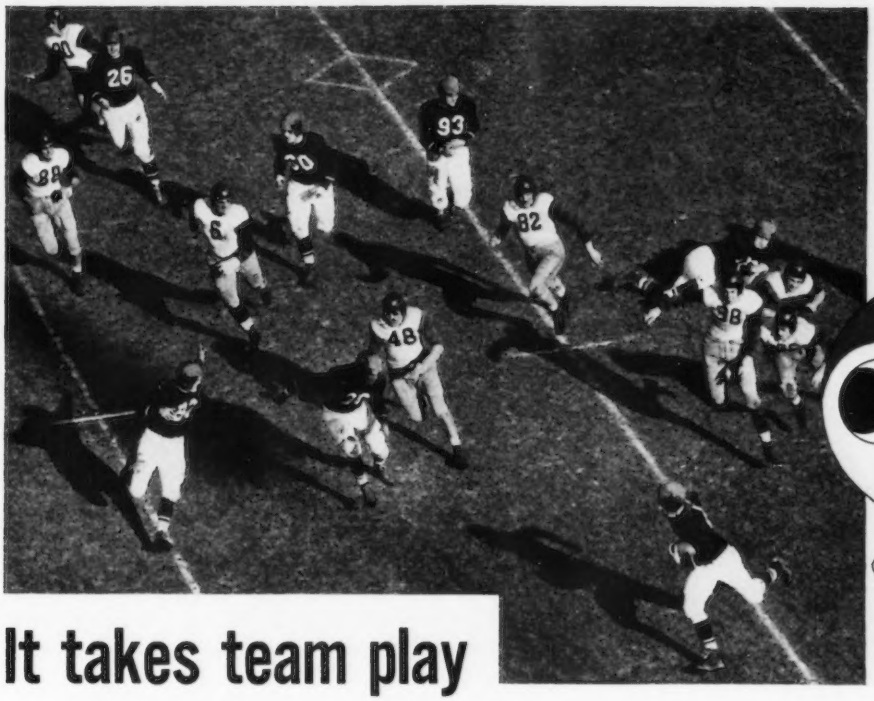
Inconel...*for longer service life*

Asten DRYER FELTS



It takes team play to make longer runs

Getting the most out of a dryer felt boils down to getting the best felt for your drying conditions. ASTEN users achieve efficient performance with minimum wear by closely cooperating with their ASTEN representative. Also participating are the people who build ASTEN quality into the felts and give them precise characteristics according to signal.

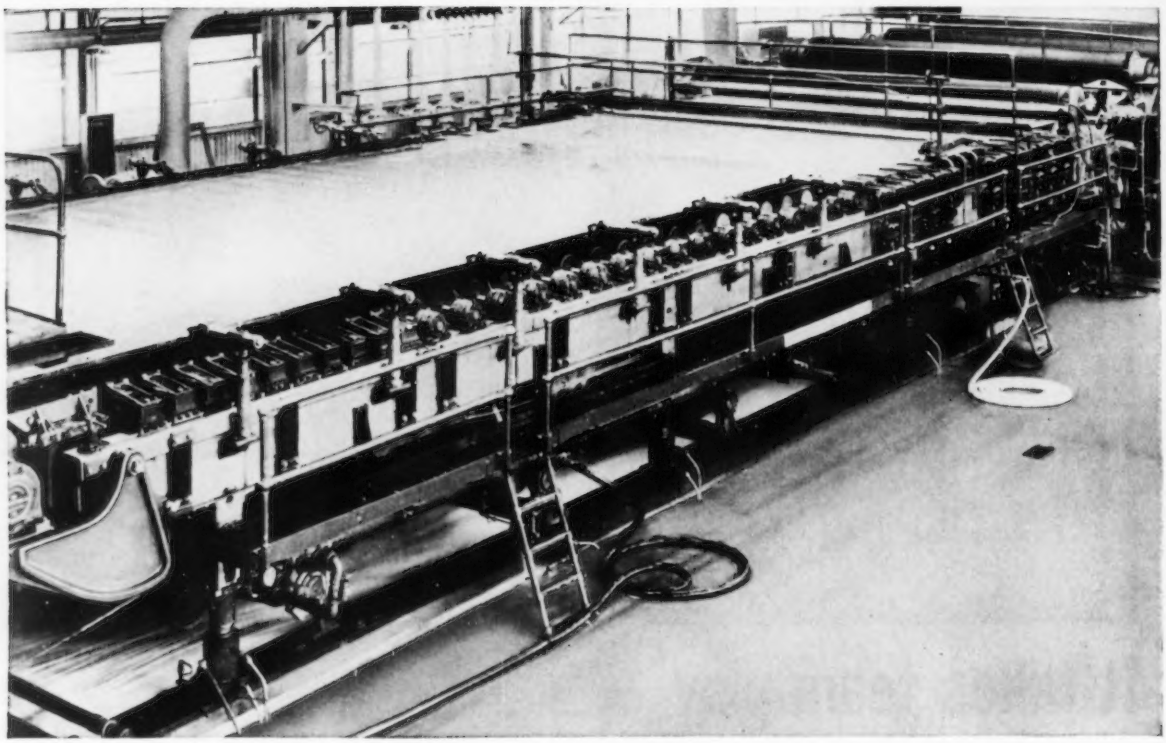
Economy in the long run

ASTEN-HILL MFG. CO.
PHILADELPHIA, PENNA.

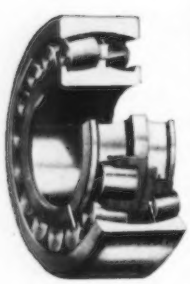
ASTEN-HILL LIMITED
VALLEYFIELD, QUEBEC

TORRINGTON BEARINGS AT WORK

TORRINGTON SPHERICAL ROLLER BEARINGS' load capacity and self-alignment feature keep this Bagley & Sewall high speed Fourdrinier wet end operating smoothly and efficiently despite vibration and the long support between bearings.



For longer life...at lower cost



You'll get faster, more efficient production, longer bearing life when you specify TORRINGTON SPHERICAL ROLLER BEARINGS on paper machine wet ends, press sections, dryers, calenders and slitter winders.

TORRINGTON SPHERICAL ROLLER BEARINGS are manufactured with an integral center flange on the inner race. This means you'll get positive radial stability and accurate positioning of thrust loads.

One piece, cast-bronze, land-riding cages —one cage for each roller path—assure freedom of operation. Accurate geometrical conformity between races and rollers develops maximum load bearing capacity at all times.

Specify TORRINGTON and get these operational advantages in your equipment. TORRINGTON SPHERICAL ROLLER BEARINGS are available from stock with either straight or tapered bore—for shaft or adapter mounting.

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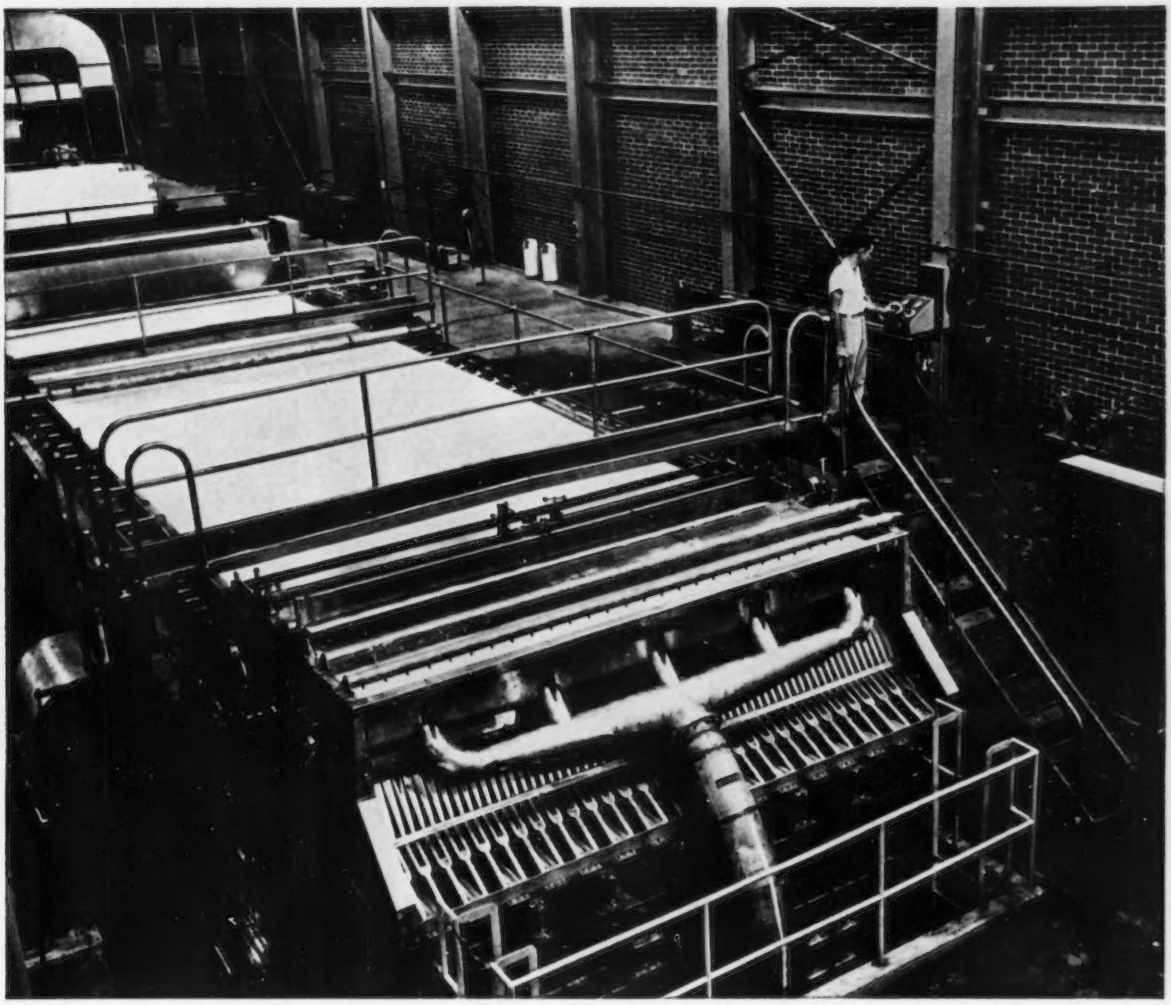
TORRINGTON *SPHERICAL ROLLER* **BEARINGS**

Spherical Roller • Needle • Tapered Roller • Cylindrical Roller • Ball • Needle Rollers



Stainless Protects Pulp All The Way in Florida's Newest Mill

All parts of this new Fourdrinier machine, including the flow distributor box, are either covered by stainless steel or made of this corrosion-resistant metal.

Typical of the trend to stainless in pulp and paper mill equipment, the Fourdrinier is part of a new 25-million dollar pulp mill in Florida. It processes cellulose pulp by the kraft method and is designed to turn out 300 tons of high-quality viscose, acetate or paper grade pulp every 24 hours.

Types 304, 316 or 316L extra-low carbon stainless steels are used in washers, digesters and other equipment, as well as the Fourdrinier.

They help prevent contamination of pulp, assure higher profits through lower costs and fewer rejections. In addition, because they fight corrosion and help prevent slime accumulation, stainless steels save greatly on cleaning time and maintenance expense.

SPECIAL GRADES FOR SPECIAL NEEDS

There is a grade of Armco Stainless Steel *especially suited* for practically every application or service condition in your mill —from screens and piping to beaters and duct systems.

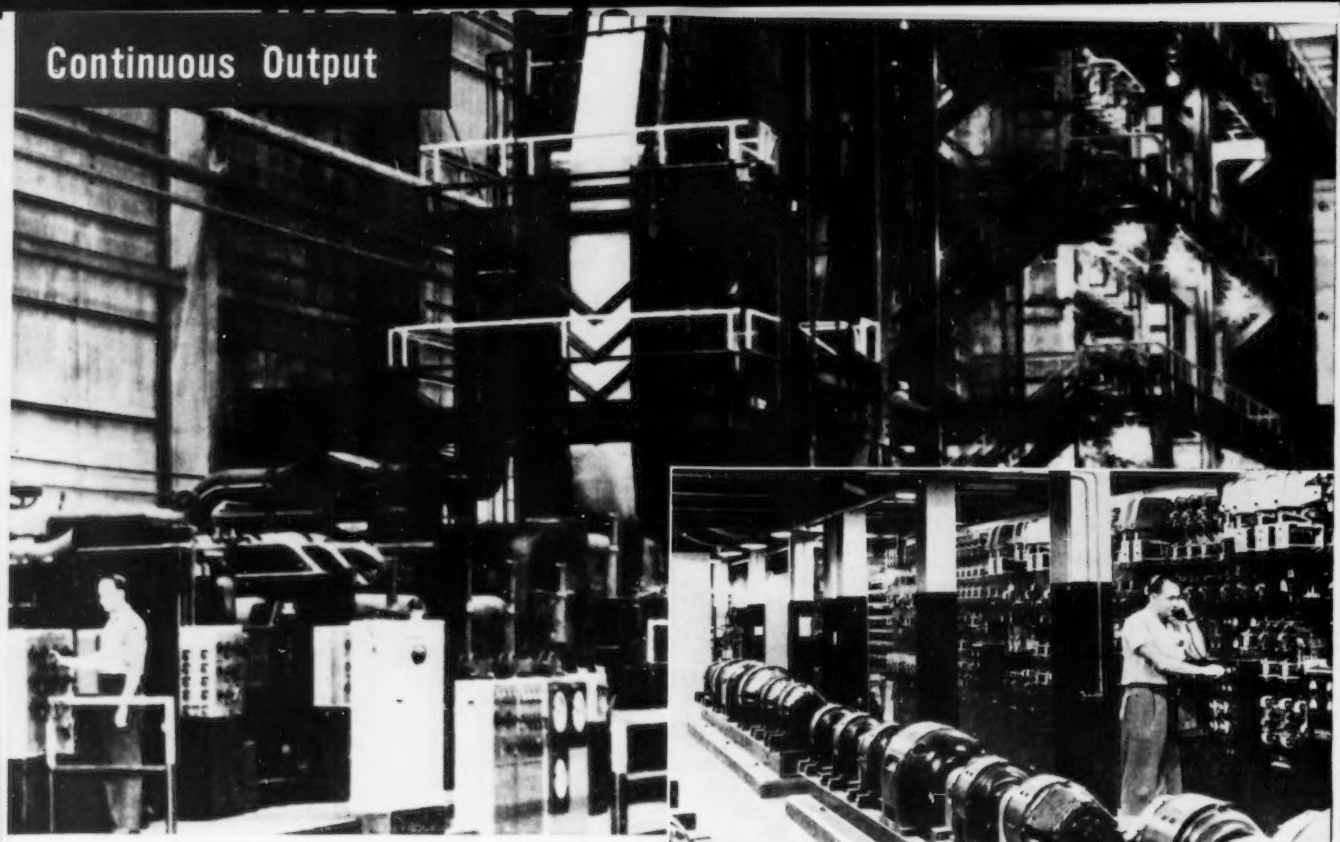
Armco engineers will be glad to talk with you and your equipment fabricator about specific jobs. Write us at the address below for complete information.

ARMCO STEEL CORPORATION
5134 CURTIS STREET, MIDDLETOWN, OHIO

ARMCO

SHEFFIELD STEEL • ARMCO DRAINAGE & METAL PRODUCTS, INC. • THE ARMCO INTERNATIONAL CORPORATION

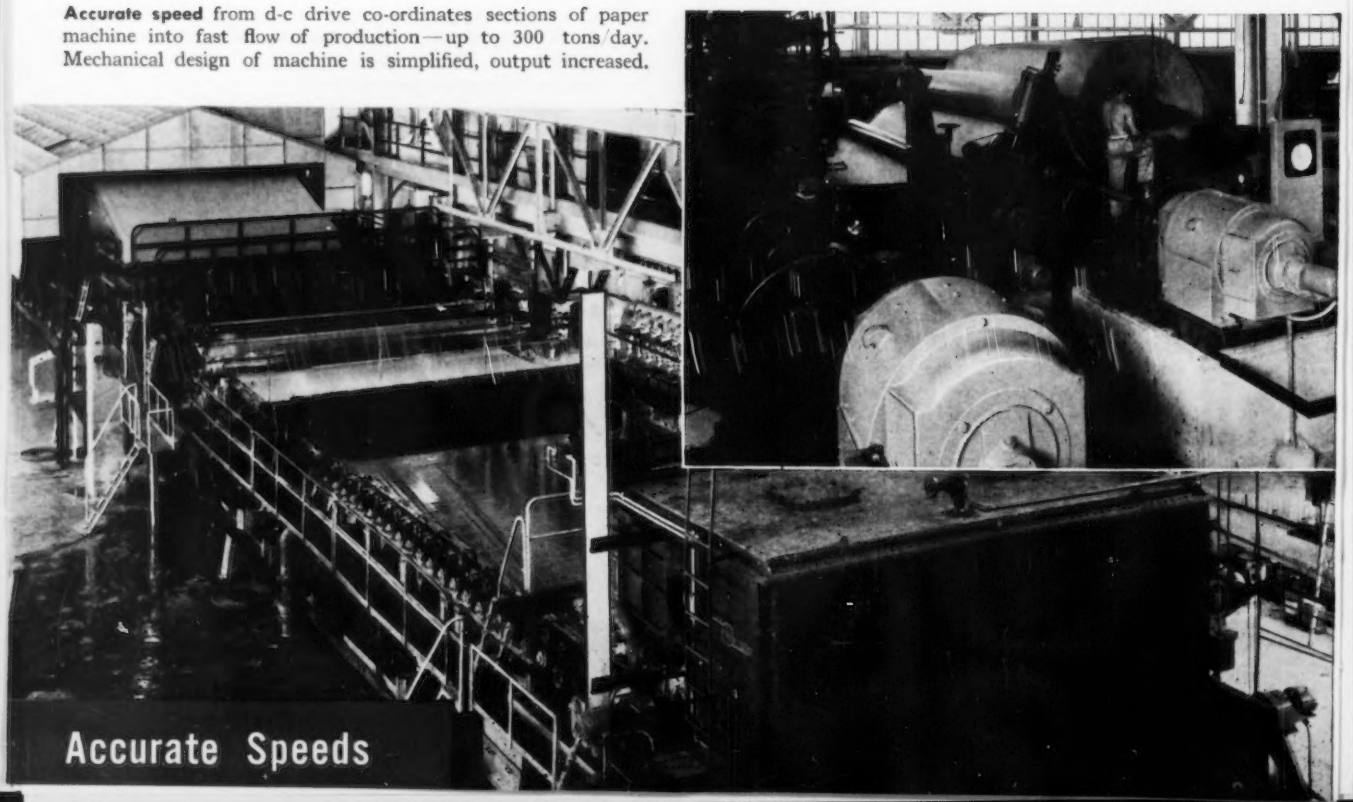
Continuous Output



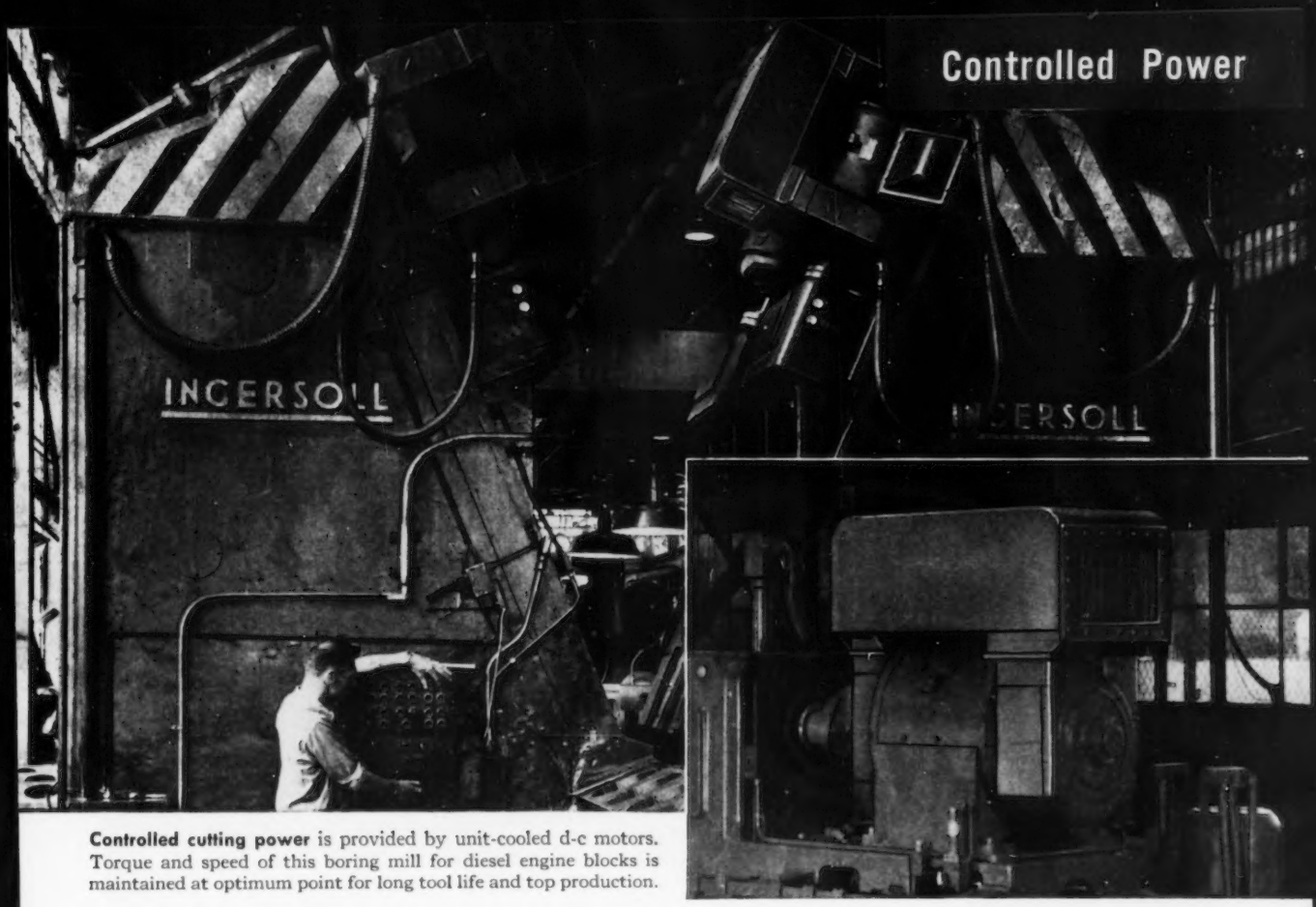
Co-ordinated G-E drive and furnace help produce up to 30 tons/hour of annealed strip. Adjustable voltage d-c generators co-ordinated by modern control provide smooth, fast, precise operation.

How General Electric d-c drives

Accurate speed from d-c drive co-ordinates sections of paper machine into fast flow of production—up to 300 tons/day. Mechanical design of machine is simplified, output increased.



Accurate Speeds



Controlled cutting power is provided by unit-cooled d-c motors. Torque and speed of this boring mill for diesel engine blocks is maintained at optimum point for long tool life and top production.

help make production automatic

DC MOTORS STEP UP PRODUCTION THROUGHOUT INDUSTRY

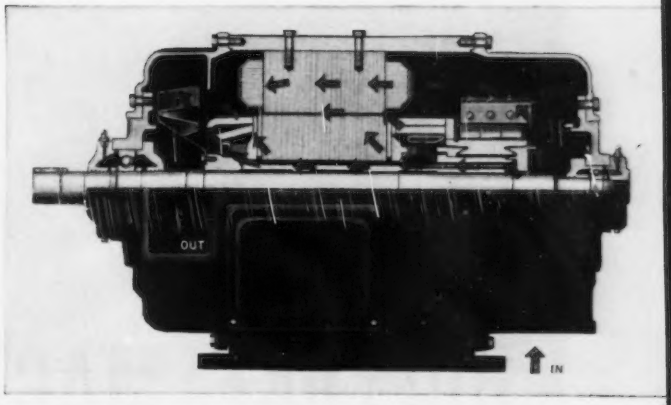
DC drives give you precise control of torque, speed, and power —essential in automatic production. The degree of precision depends on the steady performance and continuity of service of d-c motors and generators. In applications requiring close speed regulation, quick reversing, severe peak loads, G.E.'s complete line of Type CD-1000 motors is:

ECONOMICAL—the right speed at all times means less waste, fast production and low manufacturing costs per unit.

EASY TO MAINTAIN—built for long life with occasional inspection only—easily removable inspection covers. All connections are enclosed, yet easily accessible.

VERSATILE—Today's industry is more automatic than ever before. Regardless of application—in steel, paper, machine tool, and many other industries—G-E direct-current motors have gained the reputation of delivering continuous output at lower costs and accurate speeds for peak production.

FOR MORE INFORMATION, contact your nearest Apparatus Sales representative, or write for bulletin GEA-5497, general-purpose d-c motors, or GEA-6091A, totally-enclosed unit-cooled d-c motors. Section 810-4, General Electric Co., Schenectady, N. Y.



Excellent ventilating system gives positive ventilation to entire motor. Shaft fan on armature helps dissipate heat, keep within specific temperature rise.

GENERAL ELECTRIC

"HOLYOKE"
CALENDER ROLLS

HOLYOKE MACHINE COMPANY

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for maximum process stability and economy

now nondusting

Solar Colors

Unsurpassed for the tinting of white papers because they are least affected by fluctuations in pH or temperature. Solar Colors offer—

- **Maximum brightness of shade**
- **Excellent light fastness**
- **Quick wetting-out**
- **Uniform dispersion**

Solar Colors are now being delivered in a new nondusting, noncaking form which completely eliminates handling difficulties.

Solar Blues and Violets are available in a full range of shades which will produce tints of any possible hue for the brightest whites or coated papers with unexcelled color *performance*.

All these advantages are available at no extra cost.

Write for samples and technical information on the role of Solar Colors for tinting white papers.

From Research to Reality

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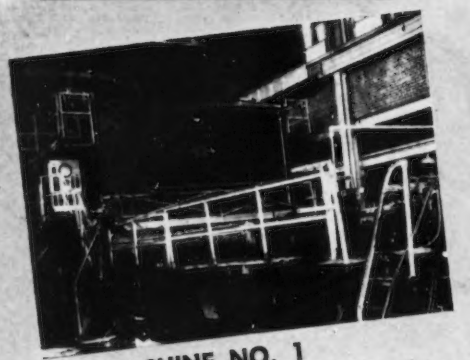
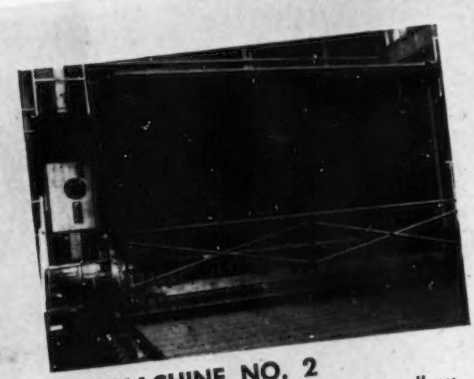
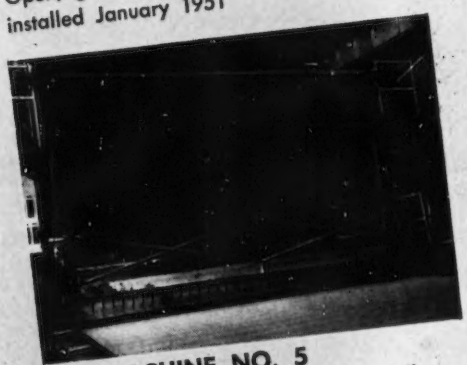


ON MACHINE NO. 1
Open, gravity type Valley Inlet-Headbox
installed May 1949



ON MACHINE NO. 2
Open, gravity type Valley Inlet-Headbox
installed January 1951

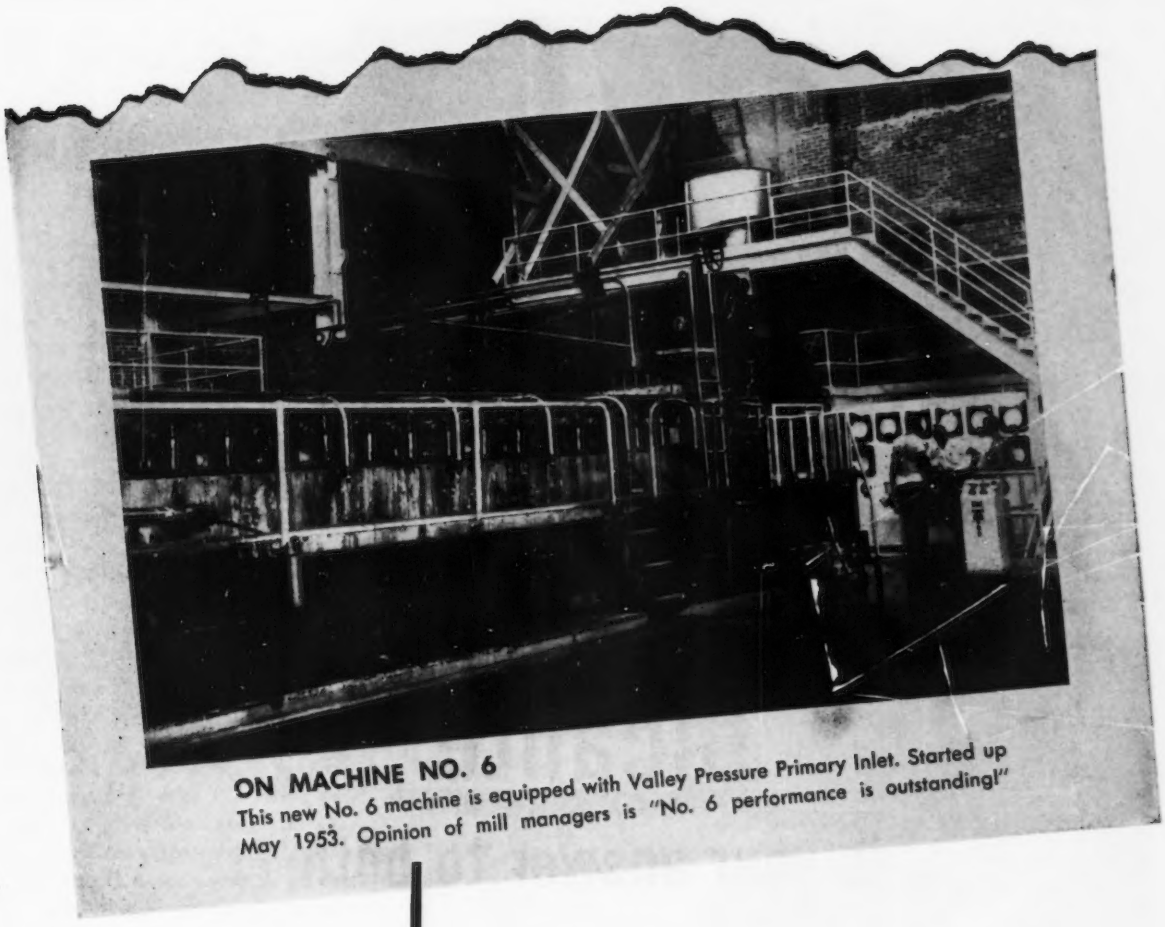
ON MACHINE NO. 3
Open, gravity type Valley Inlet-Headbox
installed May 1950



ON MACHINE NO. 5
Open, gravity type Valley Inlet-Headbox
installed November 1950

ON MACHINE NO. 4
Pressure Secondary Valley Inlet
installed October 1951

ON MACHINE NO. 4
Gravity-type Primary Valley Inlet
installed October 1951



ON MACHINE NO. 6
This new No. 6 machine is equipped with Valley Pressure Primary Inlet. Started up May 1953. Opinion of mill managers is "No. 6 performance is outstanding!"

7 VALLEY INLETS on 6 PAPER MACHINES

*Present capacity 1800 tons daily

It was in May 1948 that Valley was called to Savannah to discuss stock entrance equipment with the Union Bag and Paper Corporation — world's largest paper mill.*

In May the following year, an open, gravity type Valley Inlet-Headbox combination was installed on No. 1 machine. Since that time *all six* of Union's giant 236" machines have been equipped with Valley Inlets — including a seventh secondary installation on machine No. 4.

We believe that this record of seven Valley Inlets installed in *one mill* within a period of four years *speaks for itself.* It suggests that *you too* may profit from a conference with our engineers regarding the possibility of improving the performance of *your own* stock entrance equipment. Your inquiry requesting information or an interview will be given prompt attention.

VALLEY IRON WORKS COMPANY
Appleton, Wisconsin

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The question, usually, is not what to do with white water, but what to do *about* it. Some mills have the problem of stream pollution; others the problem of water supply. Fortunately, Dicalite filtration answers both.

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National Tube manufactures seamless pipe and tubing in a complete range of steel analyses from low carbon, through the alloys on up to and including the stainless steels. In addition, the widest range of sizes and wall thicknesses are available for every mechanical and pressure purpose.

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UNITED STATES STEEL EXPORT COMPANY, NEW YORK

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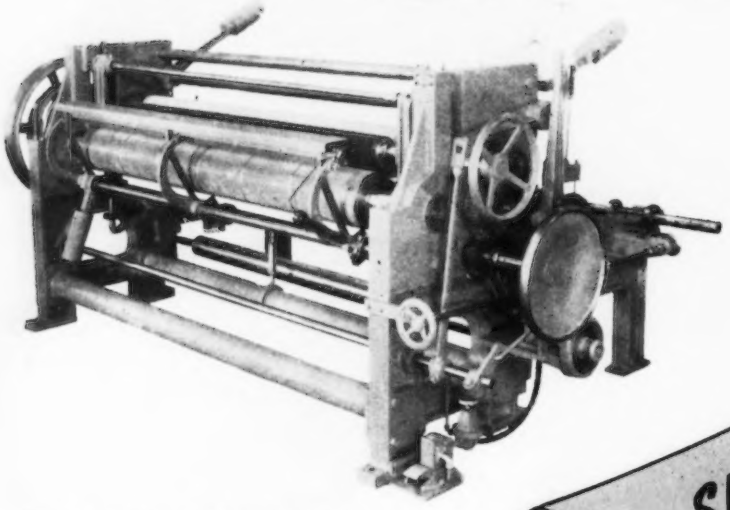
UNITED STATES STEEL

new *Paper Converting*

HARD ROLL WINDER*



Here's the result of unexcelled engineering experience and production-wise design! This *new* double shaft hard roll winder *assures* quick transfer—operator unloads completed rolls, re-cores and replaces mandrels, while running the next set.

Built-in cutoff knife and tucker minimizes downtime. Two-position spindle locks mandrel between drums. Winding is done by double drum with rider roll. Slitters can be shear, score or serrated depending on stock. Attachment for cutting long cores to individual widths is available. Automatic count and stops are included.

Designed *specifically* for mass production of standardized hard rolls such as toweling, tape, teletype, toilet tissue, etc., you owe it to yourself to know more about this *new Paper Converting* machine. Just drop us a line specifying maximum web width, slitting width, core size, maximum finished roll diameter and grades of stock to be run.

And while you're about it, why not have one of our engineers take a look at your other paper converting problems? That's his business, and you're welcome to his trained and experienced counsel—just for the asking.

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Machines Company GREEN BAY, WISCONSIN

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- Web Embossers
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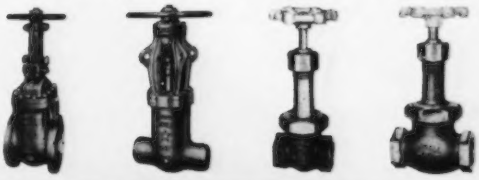

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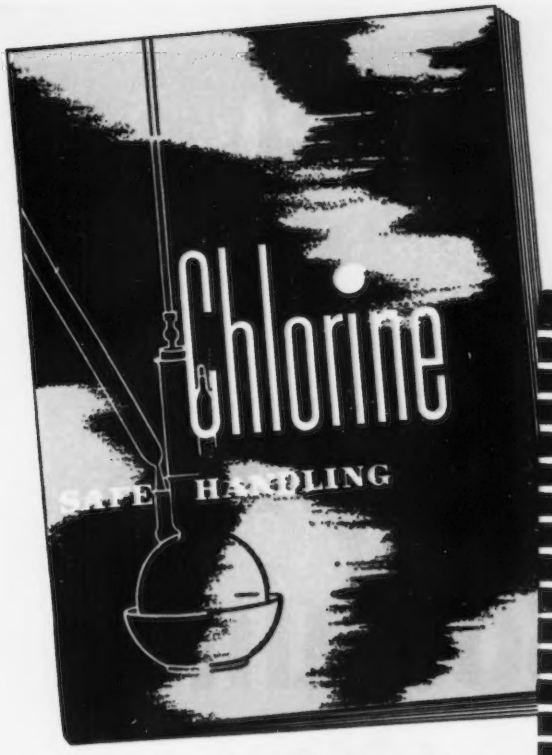

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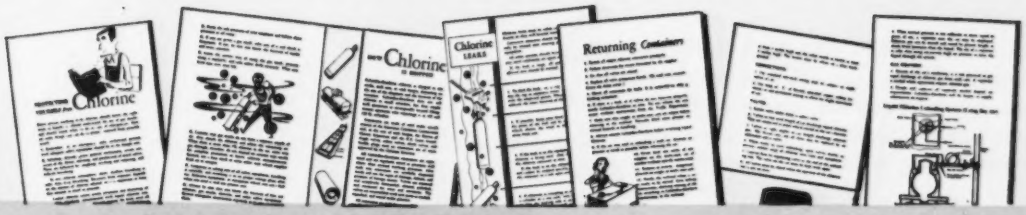

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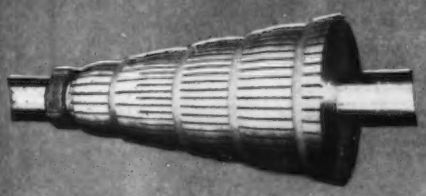

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Type P-B PLUG. Dynamically balanced at operating RPM. Easy refilling — no bands to shrink on. Bands mounted permanently in place. Made in sizes to fit any make or size of Jordan.

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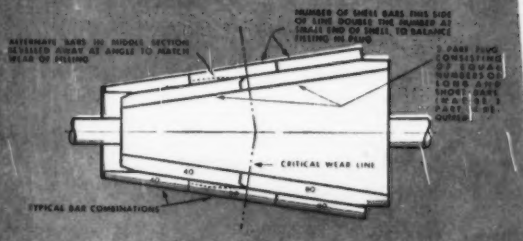
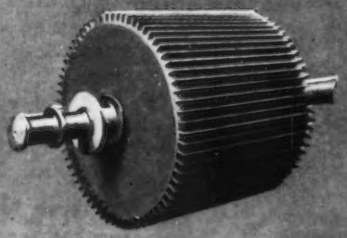


Nowave Patented Plug & Shell Fillings provide precise plug and shell alignment, better and more uniform refining, straighter bar wear — no waves or shoulders, longer filling life.



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- OK BRAND Pre-Jel
- OK BRAND Thin Boiling Starch
- OK BRAND Oxidized Starches

PAPER TRADE JOURNAL

TRENDS

No Quick Cure For Sodium Sulphate Shortage

U.S. market supply of that lowly chemical, saltcake, shows no real improvement over the tight situation that developed last Spring. Though no mill is known to be shut or any kraft pulp production curtailed for want of salt sake, available supply from all sources is not adequate to expanding kraft process demand.

Moreover, the general consensus is that no early correction can be looked for in supplies of equivalent sodium sulphate.

No Cause For Alarm. Not that there is anything newsworthy about those simple facts. They are general market information. Neither is the supply imbalance held to be cause for alarm; spot offerings from domestic and import sources are permitting kraft mills to limp along from week to week. In some cases, usage of soda ash and sulphur reportedly are being used as extenders. The subject merits serious consideration, however.

Many-sided interest in the market situation has drawn the spotlight to the inadequate supply. On the one hand is augmented demand for new southern kraft pulp which started to flow in July. On the other is a shrinking supply of the by-product type. Imports are on the uptrend. Better prices are being asked and paid. The market grows interesting to marginal producers. Prospective new sources here and in Canada are being investigated.

Unworked Natural Deposits. There are, for example, unworked natural salt cake deposits in Saskatchewan and Alberta. Canada's Government is expressing interest in developing these as well as in extending mines now being worked.

Sizable deposits in the United States could be exploited, according to U.S. chemical engineers; and expansion of other sources might be contemplated.

In all of these, time and financial investment are the principal factors. In some instances, the deposits are remote from the highway. Roads must be cut into the areas before construction on mines could begin. The million dollar investment for exploiting these deposits must be justified by assured market demand. A picture of the true market condition here is being sought for their long-term planning.

Because development of any deposit would involve many, many months of construction, the short-term outlook is not bettered by such ambitious projects. An early improvement must come from other sources, those interviewed agree.

Shrinking By-Product Supply. Production of equivalent sodium sulphate from the several chemical processes which make salt cake as a by-product—Manheim, phenol, chrome, etc.—dropped appreciably in the January to July period.

According to the Bureau of Census figures, U.S. production from all sources was some 59,000 tons less than in the 1953 period. Imports are somewhat greater, according to Commerce Department reports; exports are holding close to the year-ago levels. Net available U.S. supply this year will be proportionately less than the 1,077,139 tons which in 1953 reached a record peak.

Explanations of the shrinking by-product supply are highly involved. Spelled out, they are chiefly economic. Recessive demand for rayon, for instance, has cutback the supply of sodium sulphate that is recovered from the rayon spinning bath. A second important source —as a by-product of muriatic acid production—has been permanently slashed. The important acid is now being processed by a number of manufacturers without by-product salt cake resulting.

Spokesmen for still other companies say the lowered output is purely economic. Less muriatic, chrome, phenol, etc. are required by general industry; thus less by-product salt cake is available. They do not make and store the primary and more costly chemical to recover salt cake. But when general business rebounds, the output of rayon and other products will be in demand, and more salt cake will be available to the several industries which, like kraft mills, find it an essential chemical.

How soon this will be is anyone's guess, though some improvement is looked for.

Wherein Lies the Remedy? No ready cure is at hand for the salt cake shortage. U.S. kraft pulp output continues to expand—at Rome, Ga. this week, at East Texas next month—without any commensurate increase in sodium sulphate supply.

In the best of industry opinion—and in this instance, we mean chemical—price considerations have helped create the salt cake shortage. Why pulp mills want to whittle down the "insignificant cost per ton" of approximately $2.50 per ton of pulp is hard for chemical men to grasp. By importing low-price overseas cake during the past few years, kraft mills were successful, it is said, in depressing the domestic product to a level that was non-profitable to processors. At current levels—$24 per ton, bulk, basis 100% anhydrous, works—which are $7 over 1952 prices, $5 higher than a year ago—natural cake expansion will be undertaken gradually.

Waste Neutral Rayon Salts. Other industry opinion leans to a full recovery of the waste neutral salts of the rayon spinning bath. A large percentage of these are not being extracted because of the high cost of drying equipment.

One chemical company, for example, is already planning to take from the rayon bath some 50,000 tons of 42% Na_2So_4 in "soupy" form. Still other rayon mills can be expected to follow this pattern, it is said, providing the dollar cost of the drying equipment can be justified.

For the time being at least, the kraft pulp industry must adjust itself to take advantage of this "soupy" sodium sulphate, the spokesman said, or find some other means for cooking kraft pulp. He sees no other way.

Light Buying Interest Depresses Casein Market

Poor consumer demand here and abroad is being felt in the Argentine casein market. Good weather is favoring that country's production while buying is light. Late quotations dropped another cent to 21/22 cents duty paid New York.

Offerings from European countries are light and at prices in line with the Argentine. New Zealand's production has not reached flash, and prices are unchanged at 25/26 cents.

Price Reduction for Cast Vinyl Films

A cut of 2 to 10 cents a pound has been announced for all standard cast vinyl films by a major producer. Effective immediately, the new prices range from 92 cents to $1.10 per pound depending on quantity and grade.

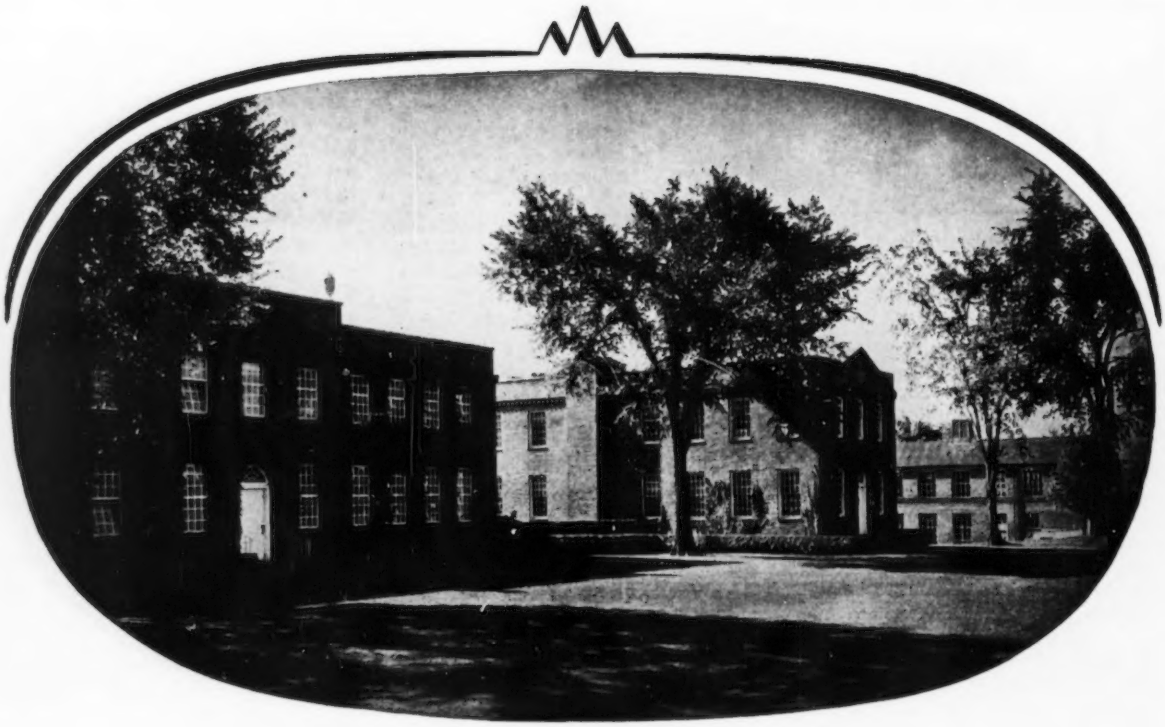
Described as an effective moisture-vapor barrier, cast vinyl film is used in the packaging field by lamination to aluminum foil, paper, etc.

—E.P.N.

Paperboard Production (Tons)*

	Oct. 2 1954	Sept. 25 1954	Oct. 3 1953
Production	260,584	246,383	259,699
New Orders	321,548	211,305	371,431
Unfilled Orders	428,796	369,305	590,808
% of Activity	95	92	98

* Source: National Paperboard Assn.



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WEEK OF PAPER TRADE JOURNAL OCTOBER 15, 1954

The new kraft pulp and container board mill of Rome Kraft Co. which began operations October 12 at Rome, Ga., erected at a cost of $25 million, is designed to produce around 650 tons of paper and board per day.

The new mill is the joint project of Mead Corp. and Inland Container Corp. The actual plant site is 10 miles west of Rome on the Coosa River.

A. H. Mahart, a vice-president and director of Mead Corp. is president of Rome Kraft. Herbert A. Kidd is vice-president and general manager. Other officers and operating chiefs were reported in Paper Trade JOURNAL, August 27, 1954.

Longview Fibre to Expand

The Longview Fibre Company's No. 6 paper machine, newest and largest in the plant, soon will be producing up to 450 tons of paper each day.

At present, this modern machine, installed in June, 1951, produces up to 300 tons of paper per day—mainly container liner board and corrugating medium. In order to increase production to the 450-ton level, the speed of the machine will be stepped up to between 1,200 and 1,300 feet per minute on some grades of paper.

The increase in production means extension of the machine building 80 feet, 60 feet on one end and 20 feet on the other.

Plans call for 27 new paper dryers, for a total of 84, to be provided by the Pusey and Jones Corp. of Wilmington, Del. In addition to these new paper dryers, a press for the application of starch as a surface sizing will be added.

With the new machine already producing 300 of the plant's daily capacity of 750 tons, the additional production from No. 6 paper machine will mean a total output of 900 tons of paper products.

The job is scheduled for completion about February, 1955, and the cost is estimated roughly at one million dollars for the additions to the machine, not including the costs of the additional pulp producing facilities.

New Downingtown Fourdrinier for New York & Penn.

The New York & Pennsylvania Co. has recently contracted with Downingtown Manufacturing Co. for a new 116" wide fourdrinier for its No. 5 Machine at Lock Haven, Pa. Offset sheets from 50 to 90 pounds and book from 35 to 80 pounds are to be produced, but the possibility of manufacturing other grades has also been considered in designing the new unit.

The new fourdrinier is of the standard design and will have 27 rubber covered aluminum tube table rolls. Speeds of 500 f.p.m. are planned. In addition to the new fourdrinier section, revisions will also be made in the press section including installation of new rolls, top arms, housings, and bearings.

The new equipment is expected to be in operation by spring of next year.

Bowater Plans Early Expansion of Paper Mill

Sir Eric Bowater, chairman of Bowater Paper Corp., Ltd., of England, plans to double the capacity of the firm's new 60-million-dollar newsprint mill at Calhoun, Tenn. "in the not too far distant future."

Sir Eric disclosed the plans for expansion in a talk before employes and their families, which highlighted opening-day activities of the elaborate three-day dedication ceremonies for the new plant last week.

"Substantial expenditures on equipment are planned," he said. "The time will come in the not-too-distant future when an additional paper machine will be installed and, in the not-too-far-distant future, when the fourth machine will be added."

First Norwegian Mill to Make Sulphite from Pine

A/S Union (Union Co.), which operates seven pulp and paper mills, disclosed recently that it will become the first Norwegian company to produce sul-

phite wood pulp from pine and mill waste, instead of spruce. After extensive tests and pilot production, it has acquired license rights to a patented Swedish process developed by Stora Kopparberg A/S, Falun. Opening new opportunities for utilizing the abundance of pine in the Telemark district, the project is part of the company's modernization program.

New Pulp Mill for B. C.

British Columbia Forest Products Ltd. and the B. C. Department of Lands have reached agreement on terms upon which the company may be granted a forest management license on extensive timber areas located along the west coast of Vancouver Island.

When the agreement is finally bound, it will mean that B. C. Forest Products can proceed with its plans to build a pulp mill on the Island.

This will be the firm's first venture into pulp production. At present it produces a variety of timber products including plywood.

Publishers Paper Buys Neighboring Plant

The Publishers Paper Co., Oregon City, Ore. has prepared the way for possible expansion of their paper mill there by purchase of the Oregon City Manufacturing Co.

The Oregon City Manufacturing Co., formerly known as the Oregon City Woolen Mills, will be allowed to continue making cloth at the present plant for 15 months, while a new site is sought.

The paper mill, which nearly surrounds the clothing firm, acquired land, buildings and property rights of the clothing firm. The buyers said the purchase was made as part of a long-range development program.

U. of Me. Studies Sulphite Waste Treatment

University of Maine has announced the signing of a contract between the University of Maine and the National Council for Stream Improvement, Inc., under which the university will conduct research to develop waste treatment methods applicable to the Maine pulp and paper industry.

Specifically, the university will study methods for treating the waste liquor from sulphite pulp mills with particular reference to river conditions in the State of Maine.

Champion-Int. Honors Retired Employees

A luncheon honoring ten retired employes of the Champion-International Paper Company who have combined a total of over 320 years service for the firm, was held last week.

These ten persons bring the total of retired employes at the Lawrence, Mass. plant to 17 since the pension plan was instituted last year. Kurtz Hanson, president of Champion-International welcomed the guests of honor and congratulated them for their faithful service throughout the years.

Imports Major Factor In Foreign Trade

United States imports of pulpwood, wood pulp and paper in 1953 amounted to about 935 million dollars, equal to 9 percent of the total value of this country's imports that year, according to E. W. Tinker, Executive Secretary of the American Paper and Pulp Assn. In addition, he pointed out, substantial quantities of chemicals, casein and other materials, as well as equipment, are imported by the paper industry.

Mr. Tinker further stated that although the industry's importance as a supplier of foreign exchange is not generally known, purchases abroad by it are a mainstay to the economies of several countries, particularly Canada, Finland and Sweden. Canada, for example, is our largest supplier of pulpwood, wood pulp and newsprint. Our imports from that country last year amounted to over $775 million, equal to about 31 per cent of the value of all our imports from that country. In turn, these purchases helped underwrite 25 per cent of Canada's purchases from us.

Another example is Sweden, from which country imports of wood pulp and paper totaled $42,715,000 last year, equal to 42 per cent of the total value of imports from that country in 1953.

Perhaps the most revealing example is the case of Finland, Mr. Tinker concluded. The total value of all our imports from Finland last year amounted to $42,400,000 of which wood pulp and paper amounted to $36,100,000. In this instance, the industry's purchases provided enough dollars for Finland to buy $22,200,000 worth of goods from us, and leave a sizeable balance of dollars remaining for purchases in other world markets.

Paper and Board Production

According to the American Paper and Pulp Association, the ratio of United States paper production to mill capacity for the week ending October 2, 1954, was 94.0 percent, compared with 96.0 percent revised, for the preceding week. The ratio was 96.5 percent for the corresponding week a year ago. Mills producing newsprint exclusively are not included.

The paperboard production ratio for the week ending October 2, 1954, was 95 percent, compared with 92 percent for the preceding week, and 98 percent for the corresponding week last year.

(Detailed statistics on page 82.)

Paper History Gifts To Western Michigan

Gifts from Homer H. Latimer and George H. Gerpheide have greatly enhanced the paper history collection at Western Michigan College, used by students of paper technology.

Mr. Latimer, former director of papermaking for the Champion Paper and Fibre Co., Hamilton, Ohio, and now retired at Pompano Beach, Fla., has given a sheet of watermarked paper, the personal stationery of Napoleon Bonaparte. The gilt edged sheet made by Johonnot clearly shows both sides of the imperial seal in its watermarking.

Mr. Latimer also presented a copy of Dard Hunter's "Eighteen Centuries of Papermaking," among several books on the techniques of the art.

Mr. Gerpheide, former president and general manager of the Hawthorne Paper Co., Kalamazoo, has given an even more famous and rarer Hunter volume, "Primitive Papermaking." Only 200 of the books were published.

Ceylon Wants Paper, Pulp and Board

Bids are invited until December 7 by the Ceylon Government for the supply of 1 million white woodpulp boards for postcards and 8,000 reams of white printing paper.

A copy of the bid invitation is available for review on loan from the Commercial Intelligence Division, Bureau of Foreign Commerce, U. S. Department of Commerce, Washington 25, D. C. Copies also may be obtained from the Embassy of Ceylon, 2148 Wyoming Avenue NW., Washington, D. C.

Bids should be sent direct to the Chairman, Tender Board, Ministry of Finance, P. O. Box 500, Colombo, Ceylon.

Bowaters Tenn. Dedicated

Formal dedication of the $60 million Bowaters Southern Paper Corp. brought some 500 visitors to the Calhoun, Tenn. plant on October 9. (A detailed description of this new newsprint operation appeared in *Paper Trade Journal*, September 3, 1954.)

At ceremonies attended by southern newspaper publishers, paper industry representatives, federal, state and local officials, as well as top Bowater personnel from many parts of the world, Sir Eric Vansittart Bowater, chairman of Bowaters, described the Tennessee mill as "a shining example of 'trade not aid' between Great Britain and the United States."

"The reinstatement of British investments here which were expended during World War II in the defense of our Western democracy, is of major importance to our economy, and I am sure it was hoped that this mill would give a lead and fillip to British industry overseas. Our mills represent one of the first major efforts by British industry in the post-war period to increase dollar earnings by establishing manufacturing plants within the United States."

Governor Frank Clement of Tennessee and Peyton Anderson, president of the Southern Newspaper Publishers Association, participated in a double plaque unveiling ceremony. Welcoming the Bowater Organization on behalf of the State of Tennessee and the entire Southland, Gov. Clement hailed the mill as another step forward in "the South's enlightened industrial revolution."

The SNPA plaque was presented to the company to commemorate the construction of the first independently financed newsprint mill in the South. In making the presentation, Mr. Anderson paid tribute to the company's "vision and initiative" in selecting a southern site.

Champion Announces New Profit-Sharing Plan

A new profit-sharing plan for its employees throughout the country has just been announced by The Champion Paper and Fibre Co.

The plan for division of profits was given an overwhelming vote of approval by the common shareholders on October 1. The plan is subject to the approval of the U. S. Treasury Department, as to whether or not it conforms to the laws and regulations permitting such plans.

Under the new plan, fifteen percent of Champion's profits before taxes will be allocated to the benefit of employees.

This plan is the result of two years' study with business consultants and employee committees, Mr. Robertson explained. It is hoped that the new plan can become effective about November 1.

There will be no deductions from employees' wages for hospitalization, retirement income, life insurance, health and accident insurance, medical and surgical benefits. The cost of these benefits will be paid from the fifteen percent of profits before taxes. The balance of the fifteen percent will be put into a trust fund with an individual account for each employee.

The amount in the employee's account will be paid to an employee's beneficiary in the event of his death, and will provide benefits for an employee at retirement or in the event of permanent and total disability. If an employee leaves the company he will receive ten percent of the value of his account for each year of membership in the plan up to 100 percent after ten years.

Drilling for Oil on St. Regis Timberlands

The Texas Co. has concluded an agreement with St. Regis Paper Co. and Florida Oil & Gas Co. to drill for oil on 10,000 acres of land in Santa Rosa County, Fla.

The Texas Co. holds drilling rights on 5,000 acres and St. Regis Paper owns the remaining 5,000, on which it shares mineral rights equally with Florida Oil & Gas Co.

Drilling operations will be supervised by The Texas Co., which will put up 50 per cent of the cost. The remaining expense will be shared by the two other companies on a 50-50 basis. Drilling of the first test well is under way.

A good part of the drilling site is on St. Regis' extensive timberland holdings which supply the company's paper mill at Pensacola, Fla. Presence of oil in this area was suggested in 1952 with the completion of a discovery well in Southern Alabama, near the Florida Panhandle. Several major oil companies are currently operating 30 producing wells in the nearby Pollard Field in Alabama. Six of these wells are on St. Regis territory.

GPO to Use Alkali Dispersible Resins

The Government Printing Office took a long step in the program of eliminating objectionable adhesives in waste paper. In its Supplemental Bulletin, issued last week, it stated that

"All resinous emulsion-type adhesive formulations published in GPO-PIA Joint Research Bulletin B-4 will henceforth be formulated in the Government Printing Office with alkali dispersible resins."

This result is based on the work of M. S. Kantrowitz, technical director, and G. G. Groome, chemist, of the Government Printing Office. Two adhesives used on paper had been found to be insoluble in deinking solutions and, thus, a source of sticky, dirty specks in paper stock. These adhesives had been used generally on padded forms and for general binding work.

This change-over does not increase the cost of the adhesive, and its use allows the Government Printing Office to reap a maximum return on its paper stock, which is sold for reuse.

This is an example of the cooperation of the Government, the Printing Industry of America, Inc., adhesive manufacturers and the Waste Paper Utilization Council, working to increase the use of paper stock—our second largest source of papermaking fiber.

Thilmany Joins Trees for Tomorrow

The Thilmany Pulp and Paper Co., Kaukauna, Wis., has become a member of Trees for Tomorrow, Inc., an industry sponsored forestry organization.

Originally founded in 1944 by nine paper firms, Trees for Tomorrow now has 18 member organizations—13 paper mills and five power companies.

Charles Seaborne, executive vice-president of Thilmany, will represent the company on the group's board of directors.

Tall Oil Contest Announced

The Tall Oil Assn. has established a contest to recognize outstanding unpublished papers and research work of persons working on tall oil and tall oil products. According to the association's president, Albert Scharwachter of Arizona Chemical Co., "There are a great many people patiently doing research work on tall oil. We cannot give them awards commensurate with the value of their contributions but we at least can recognize their efforts." The three best papers will be given awards of $500, $250 and $100 respectively.

Dr. Arthur Pollak, technical consultant for the association and chairman of the judging committee explained that "these papers will be judged on their originality and technical merit, not on their value as literature."

Further explanation and entry blanks may be obtained by writing to Awards Committee, Tall Oil Association, 122 East 42nd Street, New York 17, New York.

PAPER PEOPLE

J. W. McSwiney

Appointed Assistant To Mead President

James W. McSwiney has been appointed to fill the new position of executive assistant to the president of The Mead Corp. He takes over immediately, and will work in Dayton, where the Mead executive offices are located.

His appointment, announced by Mead president H. E. Whitaker, comes as McSwiney completes 20 years with Mead and its affiliate, Brunswick Pulp & Paper Co. He has been assistant secretary and treasurer of Brunswick since 1945.

Mr. McSwiney went to work for Mead at its Nashville Division, in 1934, first as a laboratory technician, and later as shipping clerk. He had been promoted to an accounting post at Nashville, when he was transferred to the Harriman Division of Mead in 1939 as assistant office manager. A year later, he was made plant manager of the Mead mill at Rockport, Ind. (which was later closed). In 1941, shortly before he went into military service, McSwiney served as assistant office manager at the Kingsport Division of Mead.

Upon his discharge late in 1944, he went to Brunswick Pulp as an accountant. After a brief period as office manager, he was elected assistant secretary and treasurer of the company, which is jointly owned by Mead and Scott Paper Co.

In 1954, McSwiney attended the Advanced Management Program of Harvard University. He has served as a member of the advisory board which helped North Carolina State College develop its pulp and paper technology school.

Managerial Changes At Ottawa River

Rudolph L. Tressner, formerly superintendent of its Toledo, Ohio, plant, has been appointed to the newly created post of manufacturing manager for Ottawa River Paper Co. Mr. Tressner will be in charge of all manufacturing activities at the Toledo and Flint, Mich., plants.

Succeeding Mr. Tressner as superintendent at Toledo will be Howard E. Lavender, former assistant superintendent. Florian F. Lehmann, is the new assistant superintendent. In another change, Donald F. Hatkowski was named planning supervisor of the Toledo plant in charge of production planning and administrative matters.

Brockman Retires from KVP

Arthur Brockman, powerhouse superintendent at the Kalamazoo Vegetable Parchment Co., has retired after 33 years of continuous employment.

Mr. Brockman started his employment in the old power plant as a fireman when the then young company had only two paper machines. He progressed with the company in various powerhouse jobs to eventually become superintendent.

He was named assistant superintendent in 1941, and superintendent four years later. Today, the powerhouse services two large mills with six paper machines, 40 printing presses and many paper converting machines.

Mr. Brockman plans to spend most of his time at his Gull Lake home, boating and fishing.

Paper Men Will Attend SAF Meeting

Paper mill executives will play an important part in discussions at the annual meeting of the Society of American Foresters, to be held at Milwaukee Oct. 24-27.

Subjects to be discussed by speakers and informal groups include forestry training, forest management and protection, and new uses for forest products.

Paper mill executives scheduled to speak include D. C. Everest, board chairman of the Marathon Corp., Menasha, Wis.; F. G. Kilp, forester for the Nekoosa-Edwards Paper Co., Port Edwards, Wis., and W. H. Hildenbrand, northern wood procurement manager for the Mead Paper Co., Chillicothe, Ohio.

Engineers Changed By Rayonier

Appointment of Joseph A. Krauth as resident engineer of the Grays Harbor division of Rayonier Inc. is announced by George A. Holt, resident manager.

He replaces L. R. Wood, who is transferred to the central engineering division.

Mr. Krauth graduated from Pratt Institute, Brooklyn, in 1942 with a degree in mechanical engineering and worked for the Westinghouse Electric corporation on numerous northwest installations prior to starting with Rayonier in 1951. He was employed at the Shelton division of the company as assistant resident engineer prior to transferring to Grays Harbor.

Gair Appointments

Robert Gair Co., Inc., New York, has announced the following appointments in the following carton division, effective October 1, 1954: Russell D. Scribner, plant manager at Elkhart, Ind.; John H. Fettinger, a plant manager at Thames River division, Uncasville, Conn.; and Gail E. Posson, assistant manager at Thames River division.

Frank Markle

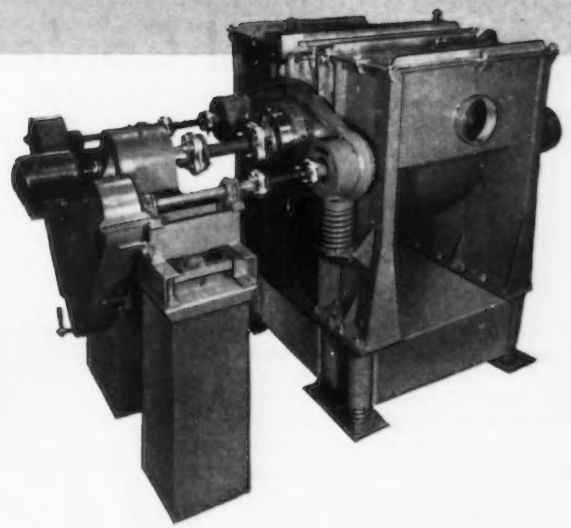
Sutherland Adds Markle To Field Sales Force

Sutherland Paper Co. has appointed Frank Markle to its field sales force.

Mr. Markle joined Sutherland in 1942 after nine years' experience in the corrugated paper field. During his time with Sutherland he has served in the Folding Carton Division, as assistant manager Sales Service, and more recently in Sales Promotion and Product Development.

This experience will serve him well in his new territory which will include almost all of the southern part of Minnesota as well as the northeastern section. From his headquarters in Minneapolis Mr. Markle will service direct line accounts.

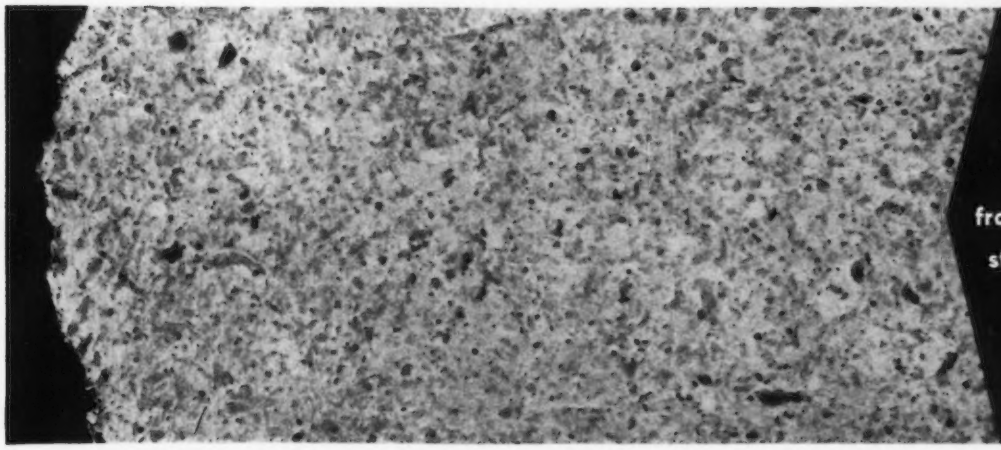
V for VERSATILE for VIBROTOR



Bleached, unbleached, semi-chemical, high density, dissolving pulps, deinked stocks — the Bird Vibrotor Screen takes 'em in stride. It delivers big tonnages, handles high consistencies, takes up minimum space, calls for minimum maintenance.

Whatever your screening problem, you will do well to look into the Vibrotor Screen.

BIRD MACHINE COMPANY
South Walpole, Mass.



A sample of the dirt removed from deinked stock by the Vibrotor Screen.

CONFERENCE HEADLINERS—C. W. Converse, P. B. Borlew, G. H. Whiteside, K. G. Chesley, R. R. Fuller (conference co-chairman), B. L. Santanin (guest speaker).

Kraft Men Hold Eighth Annual Conference

Rapid and willing exchange of ideas marked each of the technical sessions at this Birmingham gathering.

New concepts in the cooking and bleaching of kraft, soda, and semichemical pulps and improvements in the old concepts were discussed intently last week by about 275 pulp men who registered for the Eighth Annual Alkaline Pulping Conference in Birmingham, Ala. Two days of formal sessions (Oct. 6-7) at the Tutwiler Hotel were followed by a day of plant tours to Coosa River Newsprint Co., Coosa Pines, and to Gulf States Paper Corp., Tuscaloosa.

Among the many presentations on the technical program that stirred particular interest were a six-man panel on high yield pulping, a nine-man panel on semichemical pulping, a study of lignin-chlorine number relationship of high yield pulps, studies of knot utilization, a performance report on Rapid Cycle digesters, and a pulping & bleaching analysis of southern hardwood species.

Local Committeemen

The choice and effectively presented technical program had been organized by the members of the national committee listed elsewhere in this write up. Smooth scheduling of events, comfortable accomodations, and other pleasures of the visit were largely the result of hard work from the local committee.

This group was headed by Co-Chairmen George L. Clarke (Coosa River Newsprint Co.) and Robert R. Fuller (Gulf States Paper Corp.) Serving under them were David Jones, Dimp Watkins, and Phil Bachelder of Coosa River and Norman Le Maistre and Clyde Reaves of Gulf States. Other active committeemen included Henry Goodrich, C. L. Slaton, and Bob Kindl of Rust Engineering; R. A. Davis of Chicago Bridge & Iron; and Al Clayton of Mason-Neilan.

Malcom Pineo
Committee Chairman

Technical Sessions

The four technical sessions of the first two days were moderated by K. D. **Running,** Halifax Paper Co.; J. M. **Limerick,** Bathurst Power & Paper Co.; K. G. **Chesley,** Crossett Co.; H. Y. **Charbonnier,** Union Bag & Paper Co.

Eager attention was given to the following papers and panels:

"Correlation between Lignin Content and Chlorine Number of High Yield Kraft Pulps" — by E. L. **Keller;** Forest Products Laboratory, Madison, Wisconsin, and Peter B. **Borlew;** National Container Corporation, Jacksonville, Florida.

"Utilization of Kraft Knotter Rejects"—by R. E. **Millar,** J. J. **Owen,** Jr., and J. M. **Piette,** Union Bag & Paper Corporation, Savannah, Georgia.

"Sulfidity in Southern Pine Kraft Pulp"—by K. G. **Chesley** and P. L. **Gilmont,** The Crossett Company, Crossett, Arkansas.

"Direct vs. Indirect Cooking for Pine and Hardwood Kraft Pulps"—by Owen **Hunter** and Hansel **Wade,** Brunswick Pulp and Paper Co., Brunswick, Georgia.

"The Oxidation of Sulfate Black Liquor and Related Problems"—by T. T. **Collins,** Jr., National Container Corp., Jacksonville, Florida.

"Interpretation of Cooking Charts from Direct Steamed Digesters"—

G. S. Clarke (conference co-chairman), R. G. MacDonald, A. P. Yundt, H. Y. Charbonnier (program chairman), T. T. Collins, G. C. Kimble.

by John **Morris** Armstrong College, Savannah, Georgia (formerly of Union Bag & Paper Corporation).

"Instrumentation in the Cooking Process" — by Joseph F. **Keyes,** North Carolina Pulp Company, Plymouth, North Carolina.

High Yield Pulping Panel — J. McK. **Limerick,** Bathurst Power and Paper Company, Chairman; William B. **Simmons,** St. Joe Paper Company, Port St. Joe, Florida; G. H. **Whiteside,** Container Corporation of America, Fernandina, Florida; David **Weatherhorn,** Southern Paperboard Corporation, Port Wentworth, Georgia; L. M. **Sutherland,** Sutherland Refiner Corporation, Trenton, New Jersey.

"Modified Permanaganate Number for Partially Bleached Pulps"—by Charles S. **Benz,** Scott Paper Company, Chester, Pa.

"Utilizing Knots and Shives for Bleached Kraft" — by Albert L. **Wiley,** Riegal Carolina Corp., Acme, N. C.

"Instrumentation in Bleaching of Kraft Pulp"—by A. **Yundt,** Camp Manufacturing Co., Franklin, Va.

"Preliminary Investigation of the Alkaline Pulping of Bamboo"—by R. C. **Sproull,** Herty Foundation Laboratory, Savannah, Georgia.

"Rapid Cycle Digesters"—by L. E. **Eberhardt,** The Bauer Bros. Company, Springfield, Ohio.

"Kraft Pulping and Bleaching of Some Southern Hardwoods"—by D. J. **MacLaurin** and J. R. **Peckham,** The Institute of Paper Chemistry, Appleton, Wisconsin.

"Semi-Chemical Pulping Panel"—by C. W. **Converse,** Sprout Waldron Company, Muncy, Pa., chairman.

scribed board production with high yield pulp.

Lead-off talks at the Semi-Chemical sessions were nine in number. The agenda was organized as follows: W. J. Zimmerman (Parsons & Whittemore), "Wood Preparation"; K. K. Kirven (Sonoco Products), "Cooking Rotary Digesters";

Alkaline Pulping National Committee

Malcomb Pineo (Brunswick)—Chairman
H. Y. Charbonnier (Union Bag)—Program Chairman
Robert Fuller (Gulf States)—Secretary

Fred Bishop (Southland)
E. A. Harper (Hudson)
J. M. Limerick (Bathurst)
K. D. Running (Halifax)
L. M. Sutherland (Sutherland Ref.)
Vernon Woodside (Mathieson)
John Parrot (Champion)
P. B. Borlew (National Cont.)
David Wetherhorn (Robert Gair)
A. P. Yundt (Camp)
J. J. Goss (Gaylord)
K. M. Guest (National Cont.)

The success of the two panel discussions was evident from the vigor of the audience participation. Both panel chairmen assured the entire group that all remarks would be treated as "off-the-cuff". This reassurance seemed to move many of the men to talk about their experiences. The High Yield discussion was led off by short talks by each of the panelists. Bill Simmons spoke on cooking. Lon Sutherland discussed refining, George Whiteside took up washing, and Dave Wetherhorn de-

W. W. Marteny (National Container), "Cooking Continuous Digesters"; J. F. Keyes (North Carolina Pulp), "Cooking Vertical Digesters"; C. W. Converse (Sprout, Waldron), "Refiner Feeding Systems"; J. E. Sapp (Gaylord Container), "Refining"; A. L. Wiley (Riegel Carolina), "Washing"; D. J. MacLaurin (Institute of P. C.), "Bleaching"; L. W. Murtfeldt (Consolidated W. P. & P.), "Corrosion in Neutral Sulphite Pulping".

SEMI-CHEMICAL PULPING EXPERTS—(L to R) L. W. Murtfeldt, A. L. Wiley, J. E. Sapp, W. W. Marteny, K. K. Kirven, W. J. Zimmerman, C. W. Converse, D. J. MacLaurin, J. F. Keyes.

HIGH YIELD PULPING EXPERTS—David Wetherhorn, William B. Simmons, J. McK. Limerick (moderator), L. M. Sutherland, George H. Whiteside.

Social Sessions

Two luncheons brought the entire group together twice during the meeting. At the Wednesday luncheon, J. W. Warner, executive vice-president of Gulf States Paper Corp., delivered a speech of welcome and talked briefly on the larger aspects of technology's role in human welfare. He urged the technologists to accept social as well as scientific responsibilities.

The featured speaker at the Thursday luncheon was a missionary from Thailand. A native Thai, Mr. Boon Leut Santanin works at the McKean Leprosy Colony in Cheenejmai, Thailand. He spoke with humor and sincerety about the differences between his country and the United States.

Third gathering of the conference was occasioned by a Social Hour from six to eight P. M. Wednesday evening. Hosts at this convivial meeting were Gulf States Paper Corp. and Coosa River Newsprint Co.

Plant Visits

These two hospitable firms further extended their hospitality to include the entertaining of the delegates on plant tours on Friday. The visitors split up. One delegation traveling to Tuscaloosa and the other to Coosa Pines. The paper companies entertained their respective tours for lunch.

The tour of Coosa River Newsprint Co. included a stop at the company's relatively new seedling nursery. A number of the visitors helped themselves to a few seedlings wrapped for transport and there was joking talk of establishing the Loblolly species in Wisconsin or Maine.

Next Year

Tentative plans for next year's meeting were revealed at the last business session of the conference. David Wetherhorn, Robert Gair Co., will undertake the job of organizing the program. Tentative meeting place has been set in New Orleans.

It was also announced that Anthony W. Pesch, International Paper Co., will head a new subcommittee to revise the definition of terms that apply to alkaline pulping.

FEATURED SPEAKERS—(L to R) Reavis Sproull, A. P. Yundt, A. L. Wiley, C. S. Benz, L. E. Eberhardt, K. G. Chesley.

News of the Box Industry

New Massachusetts Box Plant

Wachusett Corrugated Corp., Worcester, Mass., has been organized with a capitalization of $200,000, according to an announcement by Jacob Hiatt, president of the new company, who is also president of Whitney & Co., Inc., Leominster, Mass. The company will be located in a rehabilitated roundhouse, formerly used by the Boston & Albany Railroad. It was stated that equipment is already being installed and that limited production is expected within a few weeks.

Whitney & Co., Inc., which is also headed by Mr. Hiatt, is a manufacturer of folding cartons.

National Container's New Salisbury Plant in Operation

National Container Corp. has officially opened its newest and most modern corrugated kraft paper converting plant in Salisbury, N. C.

The new plant is a completely integrated one-story unit, with a floor space of 152,000 sq. ft. It will provide corrugated kraft paper shipping containers and allied products for users in the Carolinas, Tennessee, Virginia and West Virginia. General Manager of the plant is J. W. Reynolds.

Paper Carton Used In Shipping Garments on Hangers

A paper carton, accommodating 12 hangers for men's and women's suits, sports jackets, dresses, robes and long and shorty coats, is the latest innovation for shipping garments.

The package, which is loaded by means of a jig, was demonstrated at Universal Carloading & Distributing Co. public relations office.

Made by Wilson Paper Co. of New York, the hanger carton is called "Wil-Pak" and reportedly eliminates folding operations, the need for cushioning material, repressing after unpacking and unfolding the garments upon receipt.

Krafco Buys Champion Container

Sale of the Champion Container Corp. to the Krafco Container Corp. of Dallas, Tex., was announced recently. The Leroy plant, established twenty years ago, employs fifty workers. It was acquired last year by a corporation of Buffalo men.

George W. Scrimshaw, president of Krafco, said he would continue the present management and serve current customers as well as adapt the operation to specialize in design of products required by industries in the Buffalo, Rochester and Syracuse areas.

He said present production of the corporation was running more than 70 million sq. ft. of corrugated products or 10 million boxes monthly. The plant at Leroy will add about 15 percent to the total. Krafco is planning to open a new factory in the Chicago area in November and another in Philadelphia in the spring, Mr. Scrimshaw said.

Bergstrom Commemorates 50 Years of Papermaking

This week the Bergstrom Paper Co. of Neenah, Wis. is celebrating its 50th anniversary. Fifty years ago in 1904, D. W. Bergstrom purchased the Winnebago Paper Mills, and in August of that year the Bergstrom Paper Company was incorporated as a Wisconsin corporation, with D. W. Bergstrom as president; his wife, Sara H., vice president; and J. N. Bergstrom, secretary-treasurer.

The mill in 1904 consisted of two machines, one of them 70 inches wide and the other 72 inches. It has progressed since that time through the addition of a 132-inch machine in 1912 and a 158-inch machine in 1919. In the meantime, the two original machines were dismantled and taken out of production. In 1945, the remaining two wide machines were replaced with new ones which are in operation at the present time.

These changes were made in the interest of keeping the company competitive, both quality-wise and cost-wise. As a result, the Bergstrom Paper Company today manufactures uncoated, free-from-groundwood book papers, the various grades of which can be found in magazines, advertising pamphlets, and in a variety of other uses. A considerable quantity is sold to converters. All Bergstrom papers are sold under the brand name, "Valkyrie"—the symbol of quality of Bergstrom Paper Company over the years.

New Equipment

The installation of new machines, as growth took place, necessitated other changes and the addition of other equipment. A boiler house was built at the time the two new machines were originally installed and a very modern and up-to-date power plant. Since the original installation of this power plant, another boiler was added to take care of the increased demand for steam. A new building was erected to house hydrapulper equipment for the waste paper plant. A three-stage bleachery was built to enhance the quality of the deinked pulp. New beaters were installed, and various other pieces of equipment. Of particular interest are the continuous deinking and bleaching systems developed for use on waste paper by the company.

As part of the modernization program, in October, 1951, the construction of a waste disposal plant began; and approximately a year later, it was completed and operating. The purpose of this waste disposal plant was to remove as much as possible the waste products of the deinking operation from the waters of the Fox River which supplies the water for the general area in the location of the company. This process consists of settling the wash-water used in the deinking process, removing a large percentage of the solids which are finally disposed of as fill in the area adjacent to the mill. It is hoped in years to come that this fill will enhance the beauty of the city of Neenah by forming a very fine park area.

Commemorating fifty years of papermaking, the Bergstrom Paper Company is having an "Open House" which will take place Tuesday, Wednesday and Thursday, October 19-20-21. This "Open House" will include a tour through the mill, along with displays of the end products made from Valkyrie papers. The entire community have been invited, as well as customers and customer personnel.

Hardwood Pulping for the Northeast

We present the first half of the papers presented at the Hardwood Pulping Conference, sponsored by the Northeastern Waste Utilization Council at Amherst, Mass., on Sept. 14th. The papers in this week's issue discuss wood procurement and availability, and hardwood pulping in general. Next week we will publish the remainder of the papers which deal with processes in use at various mills, engineering, economics, etc.

Purpose of Conference on Hardwood Pulping

R. B. Parmenter

President, Northeastern Wood Utilization Council Extension
Forester, University of Mass.

The purpose of this conference today is to discuss the practical aspects of pulping hardwood in the Northeast. Consequently, we will not have highly detailed, technical reports of how this pulping is done.

I've dug a little into the history of the use of hardwoods for pulp, and I find that, in 1953, there were 4,377,925 cords of hardwood used in the U. S. for pulp which was 15.5 percent of all the pulpwood consumed. In New England, in 1953, hardwoods for pulp were 22.5 percent of the total consumed, but this was concentrated in a few mills. The total hardwood consumed as pulpwood in New England in 1953 was 571,000 cords. Kraft and soda pulp mills led in this use but the semi-chemical processes were a close third.

I also find that, in terms of tonnage of semi-chemical pulp, 65 percent is produced in the South, 29 percent in the Lake States, but only 6 percent in the northeastern states. So remarkable has been the growth of semi-chemical pulp that last year it surpassed soda pulp production by 141 percent and equalled 35 percent of the total production of kraft pulp. With present U. S. production 1,028,721 tons of semi-chemical pulp in 1953 and at the annual rate of 1,044,000 tons in the January to June, 1954, period, it is predicted that hardwood semi-chemical pulp will soon outrank all other pulping processes except sulphate pulp.

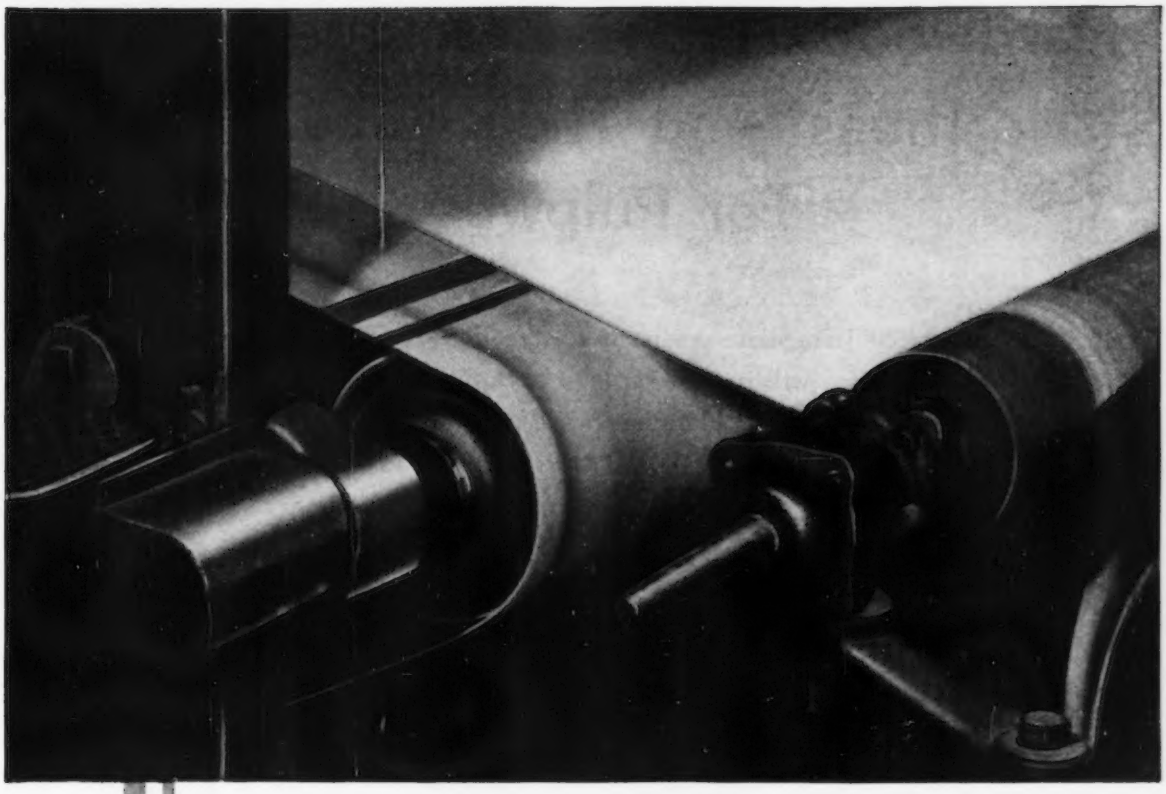
Another item of interest — the keen competition for existing supplies of the more desirable remaining softwoods — the logical solution to this problem involves handling and usage of our local resources; greater emphasis on a more complete utilization of our present forests; and a substantial increase in the manufacture of pulp and paper products from the vast and ever increasing resources of hardwoods. The latter would be of the greatest benefit.

In recent years, our problem of hardwood pulping has become a major concern to timberland owners and operators, since it offers the best opportunity to utilize what otherwise would be of little economic value. This brings up the attitude of the foresters toward the use of hardwoods for pulp. We have a problem there, to utilize these rather low-grade hardwoods which are cluttering up the woodlands. They can be used in considerable quantities for pulp, and this conference will bring out how to use them in the manufacture of pulp and also it should bring out what the pulp can be used for after it is made. The question in the minds of many of you probably is "how much hardwood can I use in my plant?"

Last, but not least, particularly in New York and New England, the situation is such as to call for concerted action and effort if we are going to make any headway comparable with what has been done in the South and the Lake States. This conference was prompted by the realization that hardwood utilization is our Number 1 problem, and the best outlet for these hardwoods is the pulp and paper industry. In this respect, New England and New York have lagged badly in comparison with the South and the West.

Welcome Address by President Jean Paul Mather, University of Massachusetts

We certainly want to welcome this Hardwood Pulping Conference of the Northeastern Wood Utilization Council, Inc., to the campus of the University of Massachusetts. Yesterday afternoon I spoke to the faculty of the University at the first meeting and pointed out to them that we are at a stage when our existing facilities are not keeping pace with our expected enrollment. This University receives from the Federal Government $100,000 of extra money. Forty-two hundred youngsters will come here to get an education this year. Competition is getting fiercer all the time. It is the job of this institution and conference to spark research or studies which are necessary to devise new methods. I hope you take this conference seriously. It gives you benefit in the long look at the vital part you play in the economy of the country.



saleable

more tons per day

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Hardwood Timber Resources in the Northeast and Their Availability For Pulpwood

The immediate prospects are that supply of hardwood pulpwood will increase at least as rapidly as the demand and the prices asked for hardwood pulpwood will continue to be reasonable.

John R. McGuire
Northeastern Forest Experiment Station,
Forest Service, U. S. Dept. Agriculture

If you go out today to buy hardwood timber for pulpwood, you will find yourself in the driver's seat. It's a buyer's market.

Today the Northeast (New England and New York) has more hardwood timber suitable for pulpwood than it has had in the last 100 years. And the supply is still increasing. You will not encounter this abundance if you try to buy hardwood veneer logs, turnery bolts, high-grade sawlogs, or softwood pulpwood. But when you want hardwood timber for pulpwood, the Northeast is one of the best sources in the country.

I hope to describe briefly how the hardwood timber resource is being used, how fast it is growing, what it consists of, and what condition it is in.

Timber Cut and Timber Growth

In recent years Northeastern forests have supplied the forest-products industries with some 8 million cords of wood annually *(Table I)*. Nearly two-thirds of this supply is softwood. The hardwood supply has amounted to less than 3 million cords.

Of the total cut of hardwood timber, nearly three-fifths is cut for veneer and sawlogs. A little more than one-fifth goes into fuelwood, posts, and other miscellaneous products. One-fifth is made into pulpwood.

Over half of the hardwood timber that is being used is taken from the northern hardwood species—yellow birch, beech, and sugar maple *(Table II)*. About a fourth is soft hardwood such as aspen,

John McGuire

red maple, paper birch, and basswood. The remainder comes from oaks and other hard hardwood species.

In New England most of the hardwood pulpwood is sugar maple, beech, and yellow birch. In New York the hardwood pulpwood cut is predominantly soft hardwoods. In the region as a whole, about half of the pulpwood is taken from so-called "sawtimber" trees—trees 12 inches in diameter and larger.

Table 1. — *Current annual cut of growing stock on commercial forest land in New England and New York, by products*

(Million standard cords, rough wood basis)

Products	Softwood	Hardwood	Total
Sawlogs	2.9	1.4	4.3
Veneer logs	—	.3	.3
Pulpwood	2.0	.7	2.7
Fuelwood	(1)	.5	.5
Other	.1	.1	.2
Total	5.0	3.0	8.0

[1]Less than 100,000 cords.

Although the annual cut of hardwood timber has been increasing in recent years, it is still relatively small in comparison with hardwood growth. We are adding to our hardwood growing stock about 10 million cords annually, whereas we are cutting only 3 million.

And this is a net growth figure that makes due allowance for tree mortality due to fire, insects, and disease. A good share of the growth takes place on trees that are in little demand, chiefly small trees and species such as red maple.

This growth-cut relationship is about what you might expect. The softwood forests have long been the mainstay of the forest products industries. In many areas the softwoods have been harvested as soon as they became merchantable and the hardwoods have been left behind to take over the site. Furthermore, many of our softwood stands came in on old fields which were natural hardwood sites. When these old-field stands were harvested, the softwoods were not replaced because the old-field conditions and the predominance of grazing no longer existed.

Timber Volume

There are about 250 million cords of hardwood timber in the Northeast *(Table IV)*. This volume is twice as great as the volume of softwood timber and more than 80 times the annual cut of hardwood. It includes over 50 million cords of sugar maple: 40 million cords of yel-

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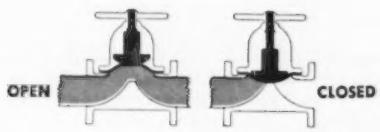

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- Flanged ends — lined or unlined, ½" thru 18"
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- Screwed ends — ¼", ⅜", ½", ¾", 1¼", 2"
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- Bendix-Westinghouse topworks
  - standard (air to close — spring to open)
    - Robotair, ¼" thru 1"
    - Rotochamber, 1" thru 4"; in tandem, 5", 6"
  - direct acting (spring to close — air to open)
    - Robotair, ¼" thru 1"
    - Rotochamber, 1" thru 4"
  - double acting (air to close — air to open)
    - Robotair, ¼" thru 1"
    - Rotochamber, 1" thru 4"
- Piston operated, 6" thru 12"
- Sliding stem bonnet, ½" thru 12"

Diaphragms
- Natural rubber, neoprene, reinforced neoprene for vacuum, hycar, butyl, white gum rubber, Kel-F, Teflon, polyethylene.

Body Materials
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- Male hose thread both ends

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Table II.—*Current annual cut of hardwood growing stock on commercial forest land in New England and New York, by species group*

(Million standard cords; rough wood basis)

Species	Northern New England	Southern New England	New York	Total
Northern hardwoods	1.0	(1)	0.7	1.7
Oak	.1	0.2	.2	.5
Other hardwoods	.6	(1)	.2	.8
All hardwoods	1.7	0.2	1.1	3.0

[1]Less than 100,000 cords.

Table III.—*Current annual net growth of hardwood pulpwood timber on commercial forest land in New England and New York, by species group*

(Million standard cords, rough wood basis)

Species	Northern New England	Southern New England	New York	Total
Northern hardwoods	2.6	0.2	1.6	4.4
Oaks	.2	.6	.5	1.3
Other hardwoods	2.3	.5	1.5	4.3
All hardwoods	5.1	1.3	3.6	10.0

low birch; 35 million cords of red maple; more than 20 million cords of red oak, and a similar volume of beech, as well as sizable volumes of paper birch, ash, aspen, basswood, and other species.

Of the 250 million cords, 140 million are found in trees that are 6 to 10 inches in diameter measured at 4½ feet above the ground *(Table V)*. The remainder is in trees 12 inches in diameter and larger.

Almost 90 percent of this tremendous hardwood volume occurs in stands that are predominantly hardwood. The other 10 percent—about 30 million cords—are scattered through softwood stands. Furthermore, most of the hardwood volume, about 160 million cords, grows in stands containing over 15 cords per acre of all species. About 80 million cords are in stands of 5 to 15 cords per acre and about 10 million are in light stands having less than 5 cords per acre.

The forests of the northern New England States contain half of this hardwood timber. More than a third is found in New York State and the remainder grows in southern New England. Although there are only about 30 million cords of hardwood in Massachusetts, Connecticut, and Rhode Island, even here the supply prospect for hardwood pulpwood is excellent since hardwood growth in this part of region alone exceeds 1 million cords annually.

Condition and Ownership of the Forest

While the Northeast is well supplied with hardwood timber of pulpwood quality, it is even richer in forest land *(Table VI)*. There are more than 40 million acres of commercial forest land —60 percent of the total land area of the region. Some 25 million of these acres are to be found in northern New England, a region that is more than 80 percent forested. Southern New England includes 6 million acres of commercial forest land and New York has 12 million acres.

Two-thirds of this tremendous acreage is occupied by hardwood forests, forests in which half or more of the stand volume is represented by hardwood trees.

The most extensive of these hardwood forest cover types is the northern hardwood forest, where the principal species are yellow birch, sugar maple, and beech. This type occupies about 18 million acres and is the predominant type of hardwood forest in northern New England and New York. Maine is the only state in the Northeast where softwood areas are more extensive than hardwood.

"Today the Northeast (New England and New York) has more hardwood timber suitable for pulpwood than it has had in the last 100 years."

The oak-hickory type is the second most important hardwood type in the region, and it is the major cover type in southern New England. In the region as a whole there are about 5 million acres of oak-hickory. The aspen-birch type and the minor hardwood types together account for less than 6 million acres of commercial forest land.

As mentioned previously, there are about 160 million cords of hardwood in the stands where timber volume exceeds 15 cords per acre. These stands occupy nearly 10 million acres. Stands of 5 to 15 cords per acre comprise over 11 million acres, and there are about 7 million acres in stands of less than 5 cords per acre. The latter acreage should be omitted from any supply calculation for the present.

More than 90 percent of the commercial hardwood forests of the Northeast are privately owned *(Table VII)*. Only 2 million of the total 28 million acres are owned by the public, including two national forests in northern New England and various state forests scattered throughout the region.

About 7 million acres are found in farm woodlots. Over 19 million acres are privately owned non-farm holdings.

Table IV.—*Volume of hardwood pulpwood timber on commercial forest land in New England and New York, by species*

(Million standard cords, rough wood basis)

Species	Northern New England	Southern New England	New York	Total
Sugar maple	35	2	20	57
Yellow birch	30	2	10	42
Red maple	15	6	14	35
Red oak	6	9	8	23
Beech	11	1	11	23
Paper birch	10	1	2	13
Ash	2	1	5	8
Aspen	4	(1)	4	8
Basswood	(1)	(1)	4	4
Other	17	8	12	37
Total	130	30	90	250

[1]Less than 1,000,000 cords.

Table V.—*Volume of hardwood pulpwood timber on commercial forest land in New England and New York, by tree-diameter class*

(Million standard cords, rough wood basis)

Tree-diameter class[1] (inches)	Northern New England	Southern New England	New York	Total
6—10	74	21	47	142
12—18	43	8	32	83
20+	13	1	11	25
Total	130	30	90	250

[1]Diameter as measured at 4½ feet above the ground.

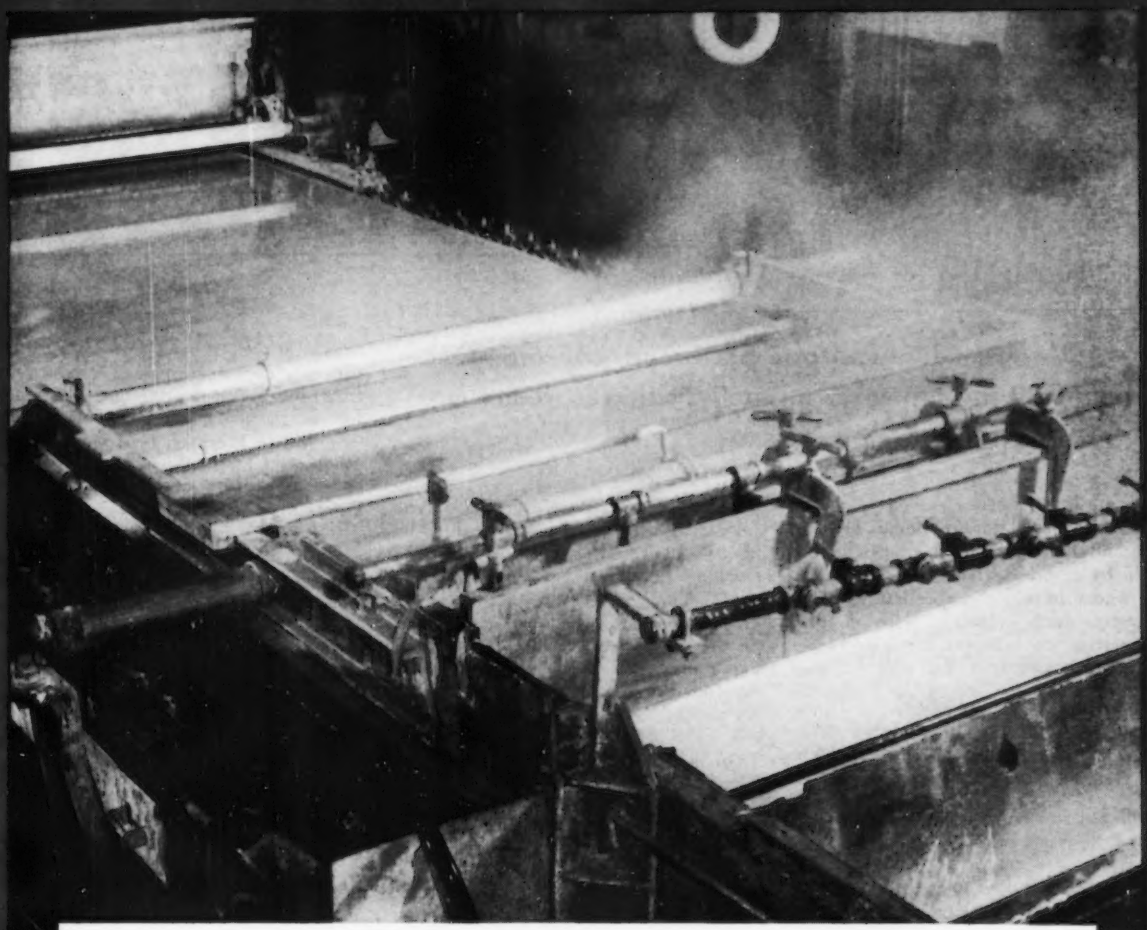

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Table VI.—*Area of commercial forest land in New England and New York, by major forest types*

(Million acres)

Forest type	Northern New England	Southern New England	New York	Total
Northern hardwoods	11	1	5	17
Oak-hickory	(1)	3	2	5
Aspen-birch	2	(1)	2	4
Other hardwood types	(1)	1	1	2
All hardwood types	13	5	10	28
Softwood types	12	1	2	15
Total	25	6	12	43

[1]Less than 1,000,000 acres.

Table VII.—*Area of hardwood forest types on commercial forest land in New England and New York, by ownership class*

(Million acres)

Ownership class	Northern New England	Southern New England	New York	Total
Farm	3	1	3	7
Non-farm private	9	4	6	19
Total private	12	5	9	26
Public	1	(1)	1	2
All ownerships	13	5	10	28

[1]Less than 1,000,000 acres.

"We are adding to our hardwood growing stock about 10 million cords annually, whereas we are cutting only 3 million."

Except in northern New England and the Adirondacks, large holdings are few.

Small non-farm forest properties are held by a wide variety of owners, many of whom have no connection with the forest-products industry. Many of these properties are held not for their timber values but primarily for scenery, summer residence, or simply for the pleasure of owning land.

Outlook for Future Pulpwood Supplies

For those who are considering the availability of hardwood timber for pulpwood, there are several points to be kept in mind.

First, the supply of large clear trees of the most favored lumber and veneer species is decreasing. Industries dependent upon these trees are continually looking for new timber sources. They are not likely to find adequate timber supplies in other regions because the same shortages of high-grade trees prevail almost everywhere. Hence they are forced to lower specifications for the trees they will cut and to attempt to make up through improved technology for the higher cost of processing less satisfactory raw material. This gradual lowering of timber specifications has been observed everywhere for a long time.

Second, there is an increasing demand for hardwood pulpwood throughout the East. The buyer's market that exists now may last for a long time, but it is certainly not going to continue indefinitely. To those who want hardwood for pulping, there is much to be said for getting in on the ground floor—acquiring mill sites and developing procurement territories—while choices of sites and territories are numerous.

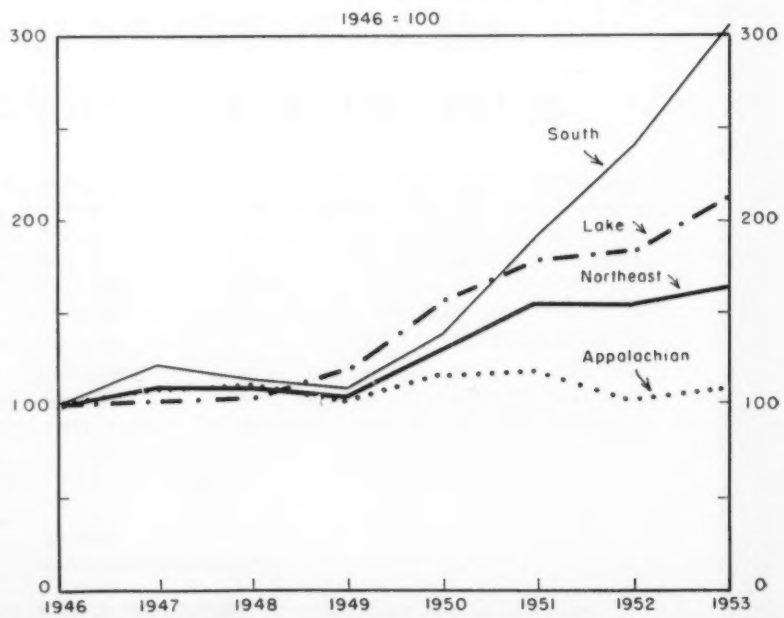
Third, on the optimistic side, there are excellent prospects for growing all the hardwoods we are likely to need in the foreseeable future. The climate and soil of the Northeast are well suited for hardwood growth and there is very little probability that alternative uses will take much of the forest land out of timber production. Admittedly there are increasing demands for the use of forests to protect water supplies, to provide game and wildlife, for scenery, and for furnishing recreation for our fast-growing population. But all of these uses are not inconsistent with timber growth. There is no reason why the vast majority of our forest acres cannot be continued in timber use.

Finally, the practice of forestry—which is simply the business of mass producing trees—is spreading more rapidly than ever before. As forestry spreads, you can expect increasing productivity from the forest land. Some of these forests, particularly here in the Northeast, will be managed for frequent pulpwood crops of smaller trees. Other forests will be managed for sawlogs and veneer logs—crops of larger trees.

But no matter what the purpose of forest management, you can be certain that more intensive forestry will result in more pulpwood supplies. Even to grow veneer logs, the forest manager must periodically remove, through a number of intermediate harvest cuttings, the trees which are crowding the final crop trees.

And thus the immediate prospects are that the supply of hardwood timber for pulpwood will increase at least as rapidly as the demand for such timber, and consequently the prices asked for hardwood pulpwood will continue to be reasonable.

HARDWOOD PULPWOOD CONSUMPTION BY REGIONS



American Paper and Pulp Association

Hardwood Pulpwood Procurement In The Northeast

Wood procurement offers no serious obstacles to greatly increased use of hardwood for pulp in the Northwest. There are very large volumes of hardwood readily available at a reasonable price throughout the area.

F. C. Simmons

Logging Specialist, Northeastern Forest Experiment Station,
Forest Service, U. S. Dept. Agriculture

You have heard of the quantities of hardwood suitable for pulping that are available in Northeastern forest stands. You are going to hear of the methods by which these woods can be pulped, and of the utility of the pulps produced.

It falls to me to provide the connecting link between these two—that is, to discuss ways and means of getting the wood from the standing tree to the mill.

The problem is that it must be delivered in suitable form, at a sustained rate, and at a reasonable cost.

You may have heard, during the past several years, all kinds of reasons why this problem cannot be solved, particularly in southern New England. You may have heard it said that people have forgot the logging arts practiced by their grandfathers, and that for this and other reasons, they no longer can be interested in woodcutting as a means of livelihood. There is supposed to be a common belief that logging is too hard work, and too dangerous to be as attractive as a job in town.

There is some truth behind all these beliefs. But the picture is changing. During and since the war our logging operators have been faced with a chronic shortage of manpower. As a result, much thought has been put on the problem by many individuals, and many different expedients have been tried to get and keep men on the job cutting wood. These efforts have had considerable success. The most successful measures have been those based on mechanizing the various phases of logging operations.

There are both psychological and financial reasons for this success. Psychologically, most of our younger men —and many of the older ones too— would much rather work with a mechanical device, such as a chain saw, than with one that takes physical skill and endurance, such as the crosscut.

Financially, it is possible for men to earn more money with the mechanical tool. Our studies have indicated, for example, that an efficient woodcutter can cut twice as much wood with a 1-man power saw as he can with a crosscut. Piecework rates for cutting logs and wood have remained the same as they were in the days of hand saws. If the average mechanized woodcutter today is not earning twice as much per day or week as his predecessors did, it is usually because he does not work as many hours per day, or because he is not so efficient in his work.

F. C. Simmons

Similarly the skidding tractor, with its winch and other accessories, is rapidly replacing the horse; loading with mechanical devices is replacing loading by hand; and bigger and better motor trucks are carrying wood longer distances to the mill. Bulldozers and motor graders are opening up our forest lands with roads and enabling the logger to live in town and commute to his job.

Right now you rarely hear anyone involved in pulpwood procurement talking about labor shortages. Generally the trouble is in the other direction. Most wood-procurement men are bothered these days by too many people wanting to bring in wood; by too many trucks, too many tractors, and too many power saws.

With increased activity in other lines of business, this current situation may not continue indefinitely. It is possible that woods labor will become scarcer again. But our experience in the past few years has shown that great masses of labor are not required for a sustained flow of reasonably priced wood. Smaller crews, properly equipped, will do the trick. The road equipment referred to above makes work possible practically the year 'round; the other devices make it easier, safer, and more productive.

And some of us think we can see opportunities for even greater economy of manpower in the future. Present techniques and possible future improvements, we believe, will insure wood at costs that will enable Northeastern mills to compete with the South, the West, and with foreign countries.

There is no gainsaying the fact that the Northeast basically is a comparatively high cost-of-production area as far as wood procurement is concerned. Labor rates are generally high, timber stands contain small and scattered trees, and because of the ownership pattern the tracts to be cut are generally small. The topography is apt to be rough and rocky, and during a considerable part of the year snow, slush, or ice hinder operations.

To all these elements, one more must be added: the fact that the subject of our interest—hardwood pulpwood—is heavy, crooked, and generally difficult to debark.

Still and all, you can get almost any reasonable quantity of rough hardwood pulp delivered to a mill site almost anywhere in the Northeast today for around $15 a cord, including a stumpage of only about 50 cents. The widespread distribution of hardwood of pulpwood quality is primarily responsible for this. Very rarely will it be necessary to go over 40 miles to get enough wood for sustained operation of a mill. And hardwood pulpwood has this cost advantage—you get half again as much wood fibre per cord as you do with softwood! So any cost estimates must take this fact into consideration.

Hand-peeled wood will cost you generally about $5 a cord more than rough wood. However, the serious aspect of demanding peeled wood is that such a specification could in effect cut down tremendously the amounts available, because hardwoods have a short natural peeling season, often several weeks shorter than that for softwoods. Outside the peeling season, they are very much more difficult to debark by standard methods than softwoods. Chemi-peeling offers a way to get around this difficulty, particularly for mills than can accept up to 2 percent bark on the wood. Of course chemi-peeling demands an investment in treatment up to a year before the wood is cut and delivered, but by and large it offers hope of solving many hardwood bark-removal difficulties.

However, most of our hardwood pulp mills purchase their wood with the bark on, and then get it off by one of the mechanical means available at the mill. Generally a typical pulpwood drum barker, has been found fairly satisfactory for doing this. New mechanical barking machinery such as the Impco and the Andersson machines offer promise of doing the job even more economically and thoroughly.

There are many other details to be decided upon setting up a wood-procurement system. Only the major ones can be considered here.

Method of Purchase

"Generally very few companies interested in purchasing hardwood pulpwood have considered it necessary to purchase forest land." The quantities of available hardwood suitable for pulpwood are so large and so widely distributed that purchase of land on which such pulpwood could be grown has not seemed important. Enough owners of forest are anxious to sell pulpwood, both in the interest of getting some income and improving their forest properties, that a good supply of standing timber suitable for pulpwood is practically assured.

The usual system of wood buying is to purchase it delivered either to the mill yard, or to some more distant loading point, generally a railroad siding. Sometimes such loading points are designated and maintained by the mill; more often they are operated by an independent contractor.

Prices paid for wood at these points and at the mill yard are published and distributed. The mill generally pays more for wood hauled in from distant points, thus, absorbing most of the increased hauling cost. This expands the procurement territory and distributes the cut evenly, thus helping to prevent overcutting of nearby stands. A contractor who supplies over 5,000 cords a year usually is paid a dollar a cord more than the published price. Any individual producer who can supply at least this amount is generally able to collect this "contractor's dollar" too.

There are, of course, all sorts of variations and deviations from this broad pattern in a purchase system. For instance, in bad times it is often necessary for the mill or its contractor to advance funds to pulpwood producers to finance wood production. Such money may be used to purchase cutting rights or stumpage, to pay labor, or to buy equipment such as trucks, tractors, or loaders. A lien on such purchases is usually retained as security by the company, and in case of default on the advance, the mill may find itself unexpectedly having timber rights or heavy logging equipment on its hands. If it cannot find another contractor to take them over immediately, it may decide to go into the logging business itself, no matter what its original intention had been.

Some companies run a company job or two as a cost yardstick, or as a demonstration of new practices or equipment. But generally purchased wood is obtainable at considerably lower prices than wood produced by company-operated jobs. This is particularly true of hardwoods. Independent producers seem to be willing to work harder and more efficiently than those on a company payroll.

Integrated Operations

One reason why we feel that the price of Northeastern hardwood pulpwood can be kept low is that in practically any cut of hardwoods, including such species as yellow birch, sugar maple, and black cherry, there will be individual sticks suitable for high-grade veneer and sawlogs, turning bolts, or other uses that yield prices much higher than pulpwood. Many pulpwood purchasers recognize this and encourage the producers to sell these higher grade portions of their cut to mills than can use them to better advantage and pay higher prices for them. Such integration is rapidly becoming a significant feature of hardwood utilization in the Northeast.

"It is generally recognized that it is good business for pulp mills to encourage integrated utilization." Everybody should profit. The veneer mills, sawmills, and wood turneries get desirable material that probably could not have been economically logged by itself; the pulpwood operator is able to increase his return from the logging, which may perhaps enable him to buy some additional equipment or to finance himself independently on his next job; and the pulp mill gets its raw material at a more reasonable cost in the long run.

It is possible, of course, to carry this idea of integration several steps farther. Besides complete bolts or logs that contain so much high-grade material that they obviously should go to a veneer plant or sawmill rather than a pulp mill, there are many more bolts or logs that contain premium quality wood on one, or two, or more sides. One pulpmill in northern New Hampshire has taken advantage of this by installing a sawmill to saw off the high-grade side cuts from selected bolts from its pulpwood piles, and sell them for furniture parts. This has been so successful that a second sawmill has now been installed, and the

"You can get almost any reasonable quantity of rough hardwood pulpwood delivered to a mill site almost anywhere in the Northeast today for around $15 a cord, including a stumpage of only about 50 cents."

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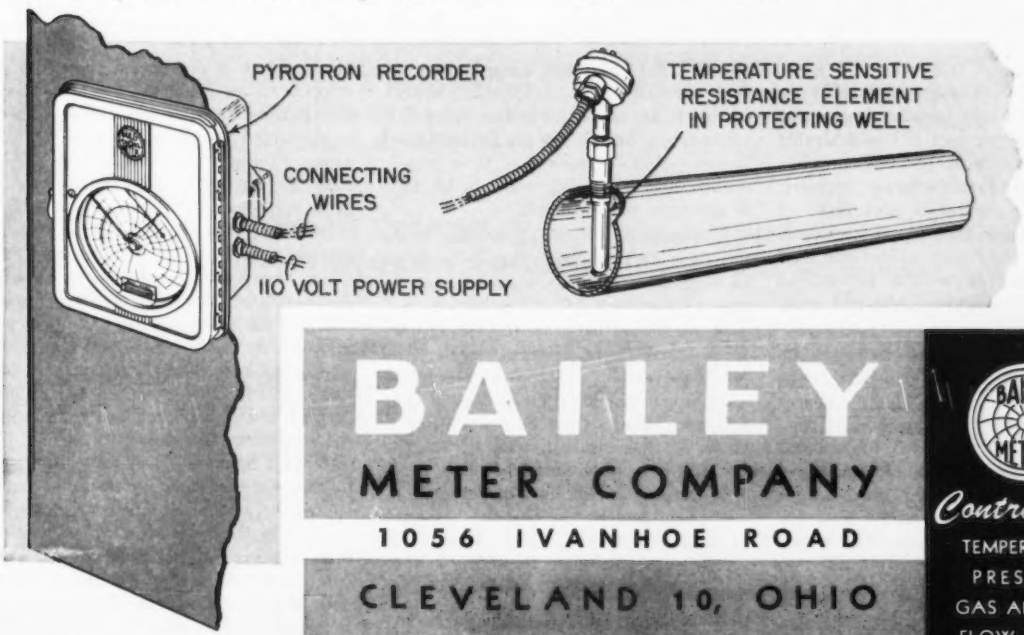

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possibilities of installing a veneer mill, to obtain high-grade veneer from the same source, are being studied. Once the premium wood has been removed, the remainder of the bolt goes on into the pulpwood chippers.

Not many Northeastern pulp mills will be big enough, or have large enough quantities of high-grade material in their pulpwood piles, to enable them to go this far. But in my opinion closer integration between pulp mills, sawmills, and other types of converting plants is inevitable in this region.

This may easily result in making the sawmill one of the principal wood procurement agencies for pulp mills using hardwood. If so, it is probable that material received at the pulp mills may be in the form of chips rather than round wood. Several recent developments are pointing in this direction.

One is the generally low grade of hardwood logs available to Northeastern sawmills these days, and the steadily increasing difficulty of marketing the quantities of low-grade hardwood lumber they contain. Such lumber is becoming a drug on the market, scarcely paying the cost of conversion when it can be sold.

Another factor is the development of barkers and chippers suitable for installation at sawmills. Several types of log barkers have become available in recent years. Although these have proved worthwhile in cleaning up the logs before they are sawed, and then, of course, in making the bark-free slabs and edgings, along with the cull lumber, available for conversion to pulp chips, they are so expensive that only the largest sawmills can afford them. Few mills in the Northeast are big enough to use them.

"Generally very few companies interested in purchasing hardwood pulpwood have considered it necessary to purchase forest land."

A more practical approach is being made by several different agencies working to develop slab barkers, or methods of separating bark from wood in chips made from slabs and edgings with the bark on. Both of these developments are well enough along so that the chips produced are suitable for use at alkaline process pulp mills, or those making low-grade pulps by other methods. With further improvements in these machines or in pulp-cleaning equipment, use of such chips at neutral sulphite mills making high-grade bleached pulps is almost certain to become feasible.

Of course, other bark-free mill residues such as veneer cores, and cull shoe-last and bowling-pin stock, are commonly used by pulp mills.

Consequently, I feel certain that integration should go forward rapidly in the next few years. I believe this system offers the greatest hope of maintaining the competitive position of the Northeast in the wood-utilization picture. Not only are our species well adapted to multi-product use and our people ingenious and cooperative but the economic pressures are so great that the demonstrated advantages of integration cannot be overlooked.

In summary you can now get round, rough hardwood at $15 a cord, and peeled wood at $20; I believe you will soon have the opportunity to buy practically bark-free hardwood chips at $10 to $12 a ton. Wood procurement generally offers no serious obstacles to greatly increased use of hardwood for pulp.

Hardwood Disposal—A Pressing Forestry Problem

Chas. L. Tebbe

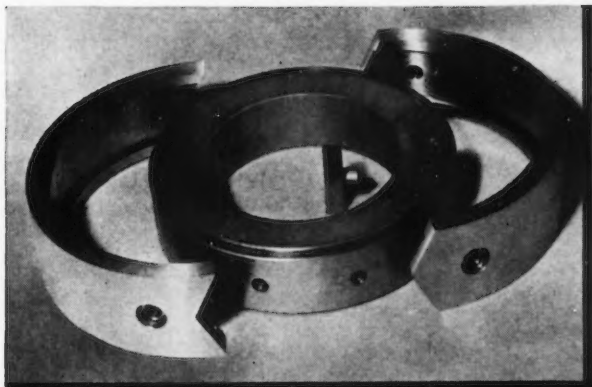
Regional Forester, U. S. Forest Service

The disposal of hardwood timber—that component of our stands that includes many of the smaller trees, the trees of poor form, and of less desirable species—is the most pressing problem of management in northeast forestry. This kind of material is crowding our stands and should be cut and removed by every consideration of volume and quality increment as well as forest land contribution to local and regional economy.

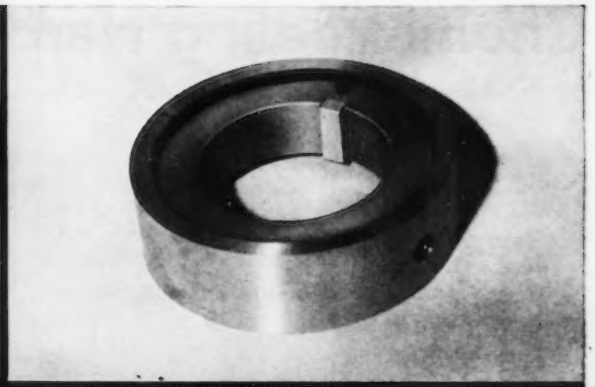
On the national forests of the region, of which there are 7, embracing 4¼ million acres, we were able to move a mere 30,000 cords of pulpwood last year, thus bringing much needed release and stand improvement to too few acres. The owners and managers of a much larger area of private and state land cannot dispose of this class of material either, though it is sound wood and suited to certain uses. The basic difficulty is lack of installed capacity to utilize what the forest is producing, that is, a very large volume of relatively low-grade hardwoods. There has been a big increase in such capacity lately, and the importance of this is not minimized. But there is a tremendous lot of low-grade hardwood in the region — more than most people realize, and something needs to be done to get more of it utilized.

So I have been voicing the idea, which has been well received, that in addition to regional and state statistics on the amount and kind of raw material available, we should begin to draw some lines around some specific local areas. And for these areas, which would approximate procurement territories for a pulp mill, we should set out how much timber there is, who owns it, what it is good for, and how much could be made available annually. This kind of resource information, which can best be prepared by the Forest Service which conducts the forest survey, could then be supplemented by data from other sources on available plant sites, water, power, transportation, labor and other factors affecting the location and operation of a new plant. Thus, a prospectus would be developed which would call attention to the possibilities in particular areas of new or expanded timber based industry. Because informed individuals and groups have thought well of the prospectus for local areas idea, the Forest Service, that is the Northeastern Forest Experiment Station and the Regional Forester's office, have been giving consideration to areas with a surplus of hardwood material and for which we have or can compile specific data. When concurrence by those who have offered to help assemble and publish the prospectuses is obtained, this work will proceed, first on one and then on successive areas.

What I have said does not add much to the store of new information being spread before this conference today—it is more in the form of an announcement that certain work is under way. When completed I think it will be a very useful and helpful refinement of the kind of forest survey data that we all know about and have been using to our great advantage.



The secret of perfect alignment is in the V-lock joint and the method of mounting the precision-ground blade on the hub.



Moore & White split double-edge bottom slitter blade mounted on hub. Note the perfect alignment of the two halves of the blade.

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R.P.M. of shaft_____

Type of machine_____

Chemi-Peeling Hardwood

David B. Cook

Supervising Forester,
New York State Conservation Department

Since the early days of the paper industry, that premier long-fibered softwood — spruce — has been the backbone of the wood supply going into our Northeastern pulp mills and even today it represents more than two-thirds of the furnish. But long years of over-cutting — of taking the spruce and leaving the hardwoods — so depleted this resource that, for some years now, you paper folks have been searching for alternate sources of raw material. The northern hardwoods — beech, birch and maple — seem to offer great promise and, currently, their consumption is expanding. A frank and thorough discussion of the use of these increasingly abundant species is the subject of this conference.

The preparation, delivery and storage of northern hardwood pulpwood present operational problems considerably different from those of softwood and any substantial increase in their use will require some changes in traditional logging methods and procurement procedures. The beech-birch-maple group is made up of woods that average half again as heavy as spruce. The volume represented by bark will be about the same. Unpeeled wood is slow to lose its moisture; this is especially true of the tight-barked birches. Rough hardwood is heavy to handle, heavy to skid, heavy to truck; the transportation cost per cord-mile may well prove to be a limiting factor. In storage, the risk of deterioration is high, especially in birch and beech. The mill yard problem of disposing of hardwood bark can be a costly one, particularly when it is removed with jet or wet drum barker. Either of these machines dump out bark which is saturated and dripping wet, material which is heavy to truck away, expensive to burn, and which may pose a stream pollution hazard. There are sound economic reasons for leaving the bark in the woods, instead of bringing it to the mill.

The traditional methods of hand peeling are not applicable to northern hardwoods. Only soft maple is a really good sap-peeler and two of the principal species, beech and hard maple, are uneconomically difficult. The woods labor situation being what it is, there seems to be little prospect of expanding the production of sap-peeled northern hardwood pulpwood fast enough to keep up with a rising demand.

Portable peeling machines of various sizes, capacities and complexities are currently available. All require the investment of considerable capital, all require that rough wood, with its bark and its high water content, be skidded at least as far as the machine set. All involve a lot of lifting and lugging of heavy units.

Chemi-peeling offers a most promising solution to this problem of hardwood bark disposal. By application of a little chemical, followed by the exercise of a reasonable amount of patience, the bark can be cheaply, cleanly and easily gotten off most species of northern hardwood. The exceptions are ash and the birches. Arsenite not only fails to loosen the bark from ash, but does not even consistently kill the trees. On birch, chemi-peeling causes the bark to separate from the wood, but the transverse fibers prevent the sheath from coming off and the bark must be split lengthwise.

The technique of chemi-peeling is quickly learned and not particularly laborious. Production per man-day is so high that, even with the relatively short season—June to early August—a small crew can treat a good deal of timber. If the work is well done, the resulting wood will be 95 percent bark-free and, after felling and bucking, will have lost substantial amounts of moisture, and consequently of weight.

D. B. Cook

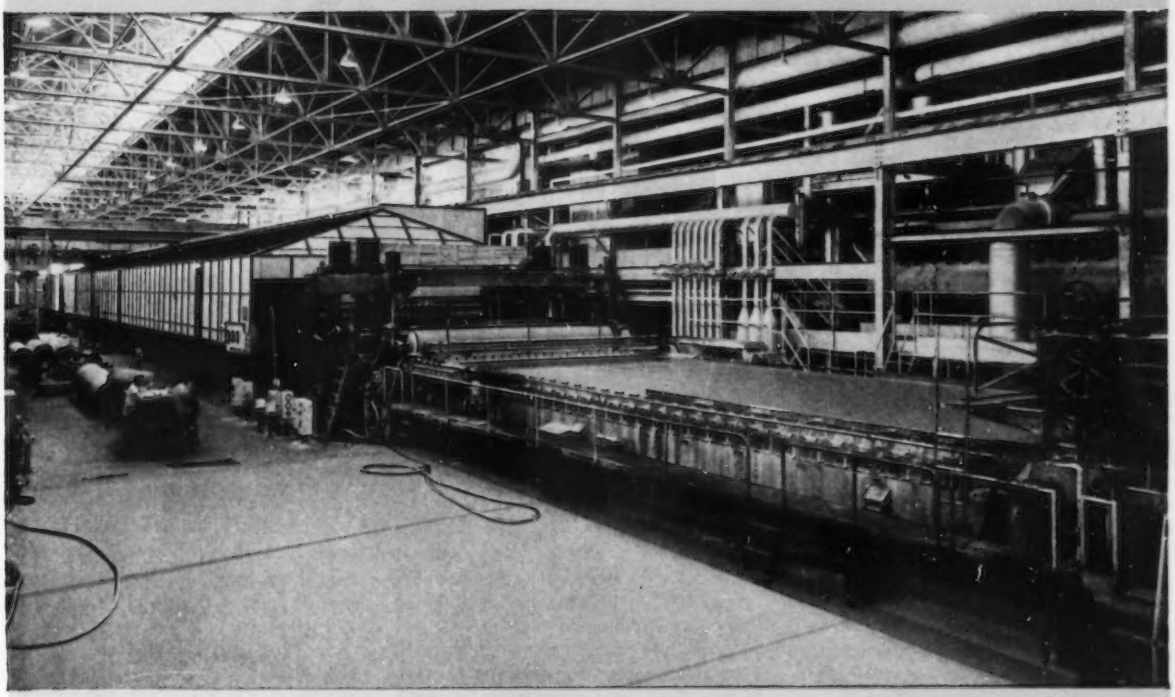
The cost of chemi-peeling will vary with tree size, stem form and volume per acre. Obviously, the larger the trees, the better the form of the butt and the heavier the stand, the lower will be the unit cost. But, because it accomplishes the results by tinkering with the life processes rather than by the application of outside force, it can be successfully used on poorly formed, rough, seamy and scrubby trees that the sap-peeler could not possibly afford to touch. For such northern hardwood timber as we are apt to put into pulpwood, the average cost should be less than $2 per cord. Against this can be balanced off a saving in skidding and especially in trucking costs due to decreased weight, and the added efficiency of doing most of the heavy work in weather more pleasant than the hot and buggy sap-peeling season. At the mill, the yard boss will take in clean, bright, fairly dry wood that can be stored with a minimum of loss from decay and insect damage. Even more important, he will be relieved of that knotty problem of what to do with a lot of worthless bark.

Chemi-peeling has its hazards, too. It will require enough constancy on the part of the company wood buyer so that the operator will have a market when his wood is ready, and not to be left with a lot of standing dead timber. Also, the woodsman must be assured of his price over the ten to eighteen months gap between treatment and delivery. It may be that the pulp companies will have to finance the chemi-peeling, as some already have done, or put in specially trained company crews to do the work. All this will necessitate an increasing interest and concern on the part of pulp company executives and their wood buyers for the economic welfare of both the pulpwood operator and the landowner.

An expanded use of northern hardwoods for pulp will require strict attention to this problem of bark removal. The most logical deal would seem to be to leave the bark and as much water as possible right at the stump. This saves weight all along the line, improves the quality of the wood and leaves the bark where it belongs, for nature to dispose of, for free.

The application of chemi-peeling to hardwood pulpwood procurement in the Northeast deserves the thoughtful consideration of the best brains in our segment of the pulp and paper industry. Rightly used, it will make hardwood pulpwood a most desirable and economically competitive raw material for our paper industry.

Union Bag with Puseyjones Machines



New No. 6 Puseyjones Fourdrinier Machine at Union Bag and Paper Co., Savannah, Ga. Fourdrinier is of Rapi-Drape construction for 120-foot wire; Press Part of Simplex design with two suction presses; Dry Part comprises 71-60" paper dryers and 16 felt dryers, with intermediate smoothing-marking press and size press; eight roll calender stack; Puseyjones horizontal track reel for 96" rolls. A General Electric multiple generator electronic-controlled sectional drive provides power for the various machine sections.

Sets World Production Record

There's a new world's record for production of Kraft paper and liner—a daily average of 1,801 tons for 30 days, and a high of 2,163 tons for a single day! That's the record set at the Savannah, Ga., plant of Union Bag and Paper Corporation, after its large expansion program "A" had increased to six the number of Puseyjones Fourdrinier machines.

All six Puseyjones machines are of 236" wire width. Unit No. 6 is designed for a speed of 2,000 feet per minute, and has all modern improvements including a winder built for speeds up to 6,000 feet per minute.

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Pulping Processes for Northeastern Hardwoods

A general discussion of the pulping of hardwoods with brief reference to the various processes which are or can be used.

Gardner H. Chidester

Chief, Division of Pulp and Paper, Forest Products Laboratory,[1]
Forest Service, U. S. Department of Agriculture

The demands in this country for paper and paperboard are continually increasing. Since 1879 U. S. population has multiplied more than three times while paper production has increased over 50 times.

This enormous growth of the paper and paperboard industry has been possible, of course, only because the pulpwood industry has been able to supply wood, the major source of fibrous material used to make paper products.

The question is: Where can the industry turn for wood for the expansions being predicted? The supply of preferred softwood is not sufficient to meet the demands. The drain of softwoods in the United States in 1945 (the most recent year for which reliable figures are available) was 116 million cords, while the growth was only 96 million cords—a deficit of 20 million cords for the year.

The hardwoods, on the other hand, are being cut at an average rate less than their growth. The drain in 1945 was 85 million cords in comparison with a growth of 102 million cords—a gain of 17 million cords. The more desirable hardwoods, including sawtimber and veneer trees and preferred pulpwoods like the gums, are more heavily cut, and the excess growth is largely in unproved woods.

The long-range plan should be, of course, to make the forests produce more wood of the desired species. At the same time, however, we need to consider means for getting more pulp per ton of wood through high-yield processes, and for using available but unused material, primarily hardwoods. Although these factors have been recognized for some time and in fact have been prominent in the program of the Forest Products Laboratory for many years, they have received special attention in the expansion of paper and pulp production since the last World War. The increased usage of hardwoods for pulp during this period is well known. Before the war only a little more than a million cords were used annually. Now more than 4 million are used and the increase has been largely in new uses. Because the hardwoods represent one of the last important frontiers of wood resources, we should examine all possibilities for using them in pulp and paper production. In the time assigned to me, I can only sketch very briefly the processes now available for pulping Northeastern hardwoods.

G. H. Chidester

Soda Process

Hardwoods are particularly suited for pulping by the soda process for producing soft, opaque, bulky pulps ideally fitted for their long established use in book and magazine papers. Roughly 25 percent of present hardwood pulpwood consumption is for soda pulp. Recent trends, however, indicate a greater use of the sulfate process to produce pulps of the "soda" type.

Groundwood Process

Lightweight hardwoods like aspen and cottonwood make good-quality groundwood pulps that can be at least partially substituted for softwood groundwood. On the other hand, the dense hardwoods, which are far more abundant than the others, make poor groundwood pulps by standard commercial practices.

The groundwood industry now consumes about 18 percent of the hardwoods used for pulp. This process might be expanded where poplar and other suitable species are available.

Brightness values for hardwood groundwood pulps made at the Forest Products Laboratory from species typical of various sections of the United States have ranged from 49 to 66 per cent. These pulps were raised readily to the brightness required for magazine papers with

[1]Maintained at Madison, Wis., in cooperation with the University of Wisconsin.

PROGRESS— at 180 MILES PER HOUR!

● **THE TIME: 8:00 A.M. . . . THE PLACE: BUFFALO AIRPORT**
DESTINATION: WOODLAND, MAINE

A Lockport Felt Company Technical Service Representative, Richard S. Buckley takes off (left), with Company Pilot Don Goodridge for Woodland, Maine, location of the St. Croix Paper Company. Trips like this are routine for Lockport executives, production heads, sales and service representatives. Lockport's experience with company-owned planes for special service and deliveries began in 1931 . . . another Lockport Felt "First."

● **5 HOURS LATER . . .**
ST. CROIX PAPER MILL,
WOODLAND, MAINE

Dick Buckley checks a TENAX FELT on a St. Croix Machine, with Mill Superintendent F. L. Coons.

No matter where, or when, or how quickly any paper mill needs technical assistance in any phase of felt operation . . . a Lockport Representative can be on hand . . . in hours if necessary. The Lockport Felt Company's twin-engine Beechcraft is based at Buffalo Airport . . . just 24 miles from the Newfane Plant. This Technical Service is available to any paper mill, without obligation.

● **9:00 A.M. NEXT DAY . . .**
THE PLACE: LOCKPORT FELT'S HOME OFFICE

Technician Buckley, returned with his findings, confers with Vice-President in Charge of Sales W. W. Campbell, Jr., Designer F. P. Heil, General Superintendent Howard F. Brown, Production Superintendent R. J. Capen (standing), and Assistant to General Superintendent Friedrich Troeltzsch.

This scene could be duplicated nearly every working day at the Lockport Plant . . . TENAX designers and production experts in the process of planning, designing, selecting correct yarns, setting up production schedules, mastering all of the myriad details involved in making TENAX FELTS. They have the same goal always . . . more paper at lower cost, with TENAX FELTS.

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TENAX FELTS

common bleaching agents, such as peroxides, hypochlorites, and hydrosulphites. In general, the strength values were also improved by bleaching, especially with hypochlorites.

The possibilities of bleached hardwood groundwood pulps are illustrated by results obtained with a mixture of six Northeastern hardwoods — red maple, paper birch, yellow birch, sugar maple, white ash, and American beech. The mixed hardwood groundwood pulp was bleached to 77 per cent brightness in one stage with 10 per cent available chlorine applied as calcium hypochlorite. The bleaching also increased the pulp strength significantly to a level accepted for printing papers.

Chemigroundwood Process

Experiments at New York State College of Forestry and elsewhere have shown that more serviceable pulps can be produced from hardwoods by modifying the groundwood process to include chemical pretreatment of the wood bolts under pressure and moderate temperature. Pulp made from hardwoods by this process, called chemigroundwood, has recently come into use as a component of newsprint. The chemigroundwood process is well suited for the production of pulp of the groundwood type from hardwoods and undoubtedly could be used for other purposes as well. Reports from the New York State College of Forestry describe the process and its application.

Sulphite Process

Sulphite pulp takes about 18 per cent of the hardwoods utilized by the pulp industry. These pulps generally supplement, or are substituted for, soda pulp in printing paper or are used in other white papers of moderate strength. Also, good quality dissolving pulps are made from purified hardwood sulphite. Although hardwood sulphite pulps are suitable for a variety of specific uses, their utility is limited by their low strength in comparison with semichemical or sulphate pulps from the same wood.

Sulphate Process

Hardwood sulphate pulp now consumes about 13 per cent of the total hardwood used by the industry, and its production is increasing. This pulp has properties that compare favorably with softwood sulphite pulp in many respects, and it has many of the same uses. It should have extensive use in products where high strength, especially tearing strength, is not the paramount consideration. Special hardwood sulphate pulps are used for rayon and cellophane.

The production of hardwood sulphate pulps will probably expand greatly, because these pulps, especially the bleached grades, are adaptable to many uses, and the process is suitable for pulping practically all species of hardwoods and softwoods.

Semichemical Process

The semichemical process is also outstanding in its application to hardwoods. It not only is adaptable to otherwise unused species, but it is capable of producing yields of 65 to 85 per cent. Most of the growth in this field has taken place in the past 10 years, chiefly for the manufacture of corrugating board and building products and, more recently, bleached papers, about 26 per cent of the hardwood consumed by the industry is with this process.

In the standard chemical processes the objective is to dissolve the middle lamella, which is largely responsible for bonding the fibers in wood. Lignin is the main component of lamella, and cellulose and hemi-cellulose are the main components of the fibers. Unfortunately, pulping agents are generally not as selective in their action as could be desired and large amounts of hemicellulose and some alpha-cellulose are lost with the lignin. Yields of pulp for the straight chemical processes range from about 45 to 50 per cent, even though the lignin was present in the wood only to the extent of 17 to 30 per cent.

In the early 1920's Rue, Wells, Rawling, and Staidl, working with sodium sulphite at the Forest Products Laboratory, discovered that complete pulping of chips was not necessary. By cooking with from 12 to 18 per cent of the chemical buffered with sodium carbonate, yields of from 60 to 75 per cent of partially pulped chips could be ob-

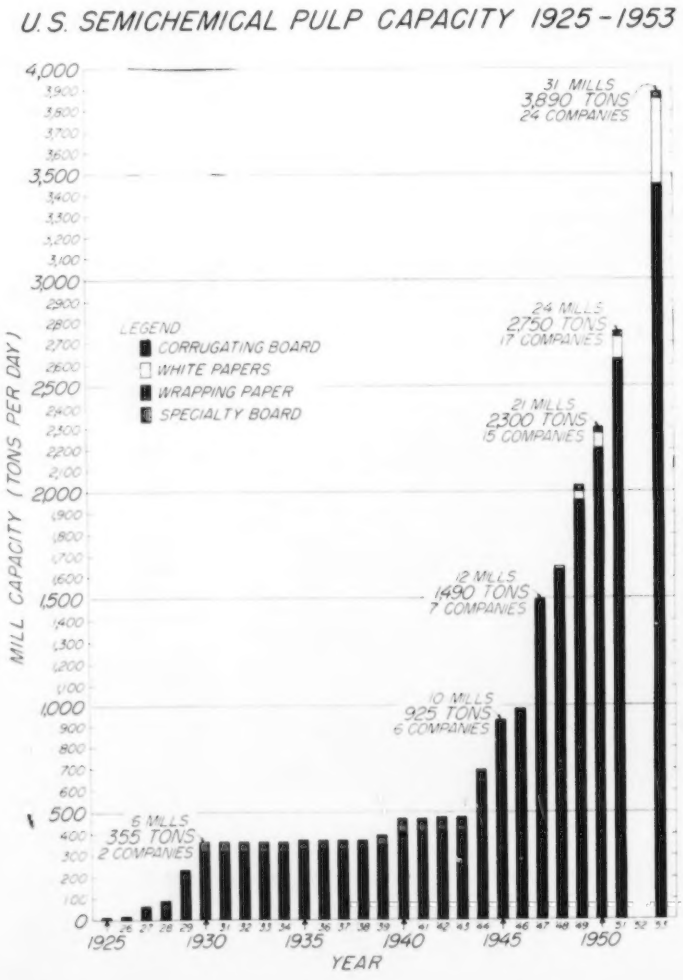

Figure 1—The semi-chemical process has shown spectacular growth since it was first used in 1925.

tained; these chips could be completely separated into the ultimate fibers, without excessive fracture, by mechanical force. Rod mills, disk refiners, and similar types of equipment were found satisfactory for the purpose. The mechanical energy required was about 370 kilowatt-hours instead of the 1500 kilowatt-hours needed for grinding spruce for newsprint. The process, called the neutral sulphite semichemical process, was applicable to all species, but was particularly good for pulping hardwoods.

The idea of semichemical pulping was not new. The literature contained several suggestions for processes of this type, but none had been developed into a practical process. The Laboratory process was the first to combine the elements needed to manufacture a product of low cost, high yield, fair strength, and a reasonable approach to a white color.

Work was being done along these lines in 1924 when the president of the Southern Extract Co., Knoxville, Tenn., asked the Laboratory for help in finding a better use than as fuel for wet extracted chestnut chips. As a result of several tests and mill runs a chestnut corrugating board was produced that was accepted as packaging material by the railroads. Within a few years a number of mills were built to use the new semichemical process, and by the early thirties production was more than 100,000 tons per year. Since then the semichemical process has shown spectacular growth (Fig. 1). Yields now range from 65 to 85 per cent, depending upon the wood and the use requirements of the pulp. In general, the process seems to be especially adaptable to small- and medium-size operations with a comparatively low investment.

In addition to their use for corrugating board, semichemical hardwood pulps have been used in other types of boards. More recently bleaching procedures have been developed for semichemical pulps that make them suitable for use in white papers. If the strength of the unbleached pulp is adequate and only a moderate brightness is required, a one-stage bleaching with hypochlorites or peroxides can be used without appreciable loss in yield. If high strength and brightness are required, the bleaching sequence of chlorination, extraction, and oxidation will serve the purpose. Although the lignin in the unbleached pulp is removed by this procedure, the yield of bleached pulp is in the range of 55 to 60 per cent, considerably higher than the yields ordinarily obtained for bleached chemical pulp.

Bleached hardwood semichemical pulps are now used in book and other printing papers, bond and other fine papers, greaseproof and glassine papers, and food boards of various types. The bleached pulp has many of the qualities of softwood sulfite pulp and therefore many of its uses. It is best suited for the harder types of papers.

Various aspects of the application of semichemical pulping are to be discussed in other reports and perhaps further discussion is not necessary here. There is, however, a rather recent development that I should like to mention briefly.

All of the conventional pulping processes offer opportunities for the utilization of hardwoods. Of most interest at the present time are the kraft and semi-chemical processes. Hardwood pulps have certain desirable characteristics but because of strength considerations the preferred use is in blends with long fibered pulps.

Cold Soda Process

Although the pulping agent used in most semichemical mills is sodium sulphite, acid sulphite, sulphate, and soda liquors are used to some extent and probably any pulping agent could be used. One recent variation of semichemical pulping involves steeping wood chips in sodium hydroxide at room temperature and pressure, followed by mechanical fiberization. The cold soda process has had small commercial application since its origination at the Forest Products Laboratory. The process can be applied to a wide variety of hardwoods growing in the United States and is believed to hold considerable promise for expansion in the future. The possibility of adapting the cold soda process to continuous operation with low capital and labor costs appears especially promising, but needs further development.

The features of the cold soda process are the very high yields of pulp—85 to 90 per cent of the original wood—and the simplicity of operation. The pulp properties are generally between those of neutral sulphite semichemical pulps and groundwood pulps.

Cold soda pulps have been used commercially in the manufacture of corrugating board, but they appear suitable for other uses, such as printing papers of the groundwood type. They can be used with hardwood groundwood pulps to produce mixtures that are equal or superior to the best quality groundwood pulps.

Conclusions

It is apparent that all of the conventional pulping processes offer opportunities for the utilization of hardwoods. Choice of the process would depend upon the kinds of paper to be made, size of the operation, investment, and many other local factors. Perhaps of most general interest at the present time are the sulphate and semichemical processes.

Hardwood pulps have certain desirable characteristics of comparatively high yield, good sheet formation, bulk, and smooth surface. Although some kind of paper in which the strength requirements are not predominant could probably be made from hardwood pulps alone, with a few possible exceptions the preferred use is in blends with longer fiber pulps.

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Chemical Recovery and Stream Pollution From Semi-Chemical Pulping

There are many problems yet to be solved in the recovery of semi-chemical pulping chemicals. A number of new processes are under investigation and the results are awaited with much interest.

Vance P. Edwardes
Consultant, Corinth, N. Y.

The recovery of chemicals or other values from the spent liquors resulting from pulping cellulosic materials has been under intensive study for years. For the kraft process the problem has been solved, for the sulphite process it can be said that, with certain limitations, a solution is in sight but for neutral sulphite or semi-chemical pulping, the problem is still unsolved.

Excellent recovery of chemicals and heat from kraft spent liquor has been the practice for many years. Spent liquors from the acid sulphite process are being evaporated and burned with the recovery of heat value alone. This statement applies to the great majority of mills where calcium is the base used in pulping. There are a few mills, where bases other than calcium are used, which recover both the chemical and heat values. With respect to neutral sulphite, the situation is quite different and while several recovery methods are under consideration and some have been carried as far as pilot plant operation, no definite information has been released as yet.

One of the most important factors in any recovery process is the solids concentration of the spent liquor. This affects both the size of the recovery plant and the cost of evaporation. The lower the solids content, the greater the investment and operating cost per unit of recovered product, chemical or heat.

Liquor Recovery

In kraft operation, the solids content of the recovered liquor will average 15 to 17 percent, in the acid sulphite, from 9 to 12 percent but in neutral sulphite, ordinarily from 3 to 5 percent. Before any values can be recovered, the liquor must be evaporated to 50 to 55 percent solids, therefore it can be seen that the steam cost for evaporation varies inversely with the solids content of the spent liquor.

There is such a wide variation in yield by the neutral sulphite or semi-chemical process — anywhere from about 50 percent to 85 or 90 percent — that the spent liquors vary widely in organic solids though the inorganic ratio content is approximately the same. This has a direct bearing on the heat value of the concentrated liquor and problems connected with its recovery. By recycling as much of the spent liquor as possible the solids content can be increased appreciably, thereby improving the chance for an economic recovery process. In the chemi-groundwood process, no information is at hand on the characteristics of the spent liquor or white water resulting.

Vance P. Edwardes
well known pulping expert
of Corinth, N. Y.

For example, comparing liquor from neutral sulphite cooks of 50 percent and 75 percent yield respectively, the former contains about 3700 lbs. of total solids, of which about 1700 lbs. are organic and the latter about 1200 lbs. as solids of which about 550 lbs. are organic. The chemical content is the difference between the above values.

According to one proposed method the steam produced by burning liquor from one ton of 50 percent yield pulp is about 8000 lbs. F & A 212° F. and from a 75 percent yield about 3000 lbs. Under conditions of excellent chemical recovery it is estimated that, for the 50 percent yield pulp, about 245 lbs. of sulphur and 1290 lbs. of sodium carbonate and for the 75 percent yield pulp, about 80 lbs. of sulphur and 430 lbs. of sodium carbonate will be recovered. Under these conditions the total value recovered is $27 for the 50 percent yield and $9 for the 75 percent yield pulp.

How close an operating mill can approach the above recovery figures depends on a number of factors including the percent of liquor recovered from the pulp, its solid content and the efficiency of the chemical recovery cycle. Unless

Pulp digesters to improve the quality of tires

Installed in new plant to produce Chemical cellulose for Rayon cord

This is one of six, four SMITHlined and two clad digesters made by A. O. Smith for the new Rayonier Incorporated, Jesup Division installation.

It will produce chemical cellulose for rayon cord that will form casings for more economical, longer lasting automobile tires.

Lined with type 316 ELC stainless steel, these digesters are 12 feet in diameter, 55 feet high and are completely shop fabricated at our Milwaukee works.

A. O. Smith engineers have worked closely with Rayonier in the past. They assisted in designing, and built the world's largest digester for their Fernandina division, and supplied two for the Port Angeles, Washington, mill.

Now, when building a new plant, Rayonier comes, again, to A. O. Smith for digesters.

Close cooperation of our staff with members of the paper industry in solving digester corrosion problems benefits all concerned. This cooperation does not end with the installation of the vessel, but continues in the conduct of subsequent metallurgical inspections and the training of mill personnel to make their own inspections and to correctly evaluate vessel conditions.

If you are faced with corrosion problems arising from the use of pulping chemicals in digesters, we shall be pleased to assist you in solving them.

Your inquiry will receive prompt attention.

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Los Angeles 22 • Midland 5, Texas • New Orleans 12
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the pulp is opened up prior to liquor recovery, the percent recovered will be low, probably not over 33-1/3 percent. A 75 percent recovery from drainers is considered good every day operation though it can be raised to about 85 percent under carefully controlled conditions. Better recovery can only be secured by the use of vacuum washers, screw press or a combination of the two. The latter equipment would add appreciably to the investment cost.

It is very doubtful if the liquor, at least from the 75 percent pulp, can be burned without auxiliary fuel. The ratio of inorganic to organic content of the liquor is bound to affect the burning operation and possibly evaporator performance.

Since the problems connected with the recovery of neutral sulphite liquors are quite similar to those encountered in the recovery of soda base acid sulphite spent liquors, methods proposed for the latter are applicable to the former process. A number of chemical recovery methods have been proposed and some carried to pilot plant operation but no information is available on results of the trials.

Recovery Methods

At the Skutskar mill of Stora Kopparberg in Sweden, recovery of a soda base acid sulphite liquor has been practiced for some years and it is understood that this process has been tried out on pilot plant scale for neutral sulphite liquors in the United States. In Sweden, the recovery system is operated in conjunction with an alcohol plant. The liquor is concentrated by evaporation prior to fermentation, the still slops further concentrated to about 55 percent solids and burned. The aqueous solution of the smelt is treated with carbon dioxide derived from the alcohol plant, the hydrogen sulphide driven off by heat and burned to sulphur dioxide while the sodium carbonate is crystallized from the solution. *(1)*

The Sulfox process has been proposed for both acid and neutral sulphite spent liquors and involves evaporation and burning, with controlled oxidization of the dissolved smelt to Na_2SO_3 and SO_2, both of which are recovered. *(2)*

Recovery by ion exchange has been described in detail and is understood to have been investigated on a pilot plant scale. *(3)* A similar process has been patented. *(4)*

A wet combustion process *(5)* has been studied for the recovery of neutral sulphite liquors on laboratory and small pilot plant scale. The results were encouraging enough to warrant the building of a $500,000 commercial pilot plant which is expected to be in operation by January 1, 1955.

"A number of chemical recovery methods have been proposed and some carried to pilot plant operation but no information is available on results of the trials."

A process which is understood to be in commercial operation, involves evaporation and burning, sulphiting the aqueous solution of the smelt and recovering $Na_2SO_3 \cdot SO_2$ gas concentration and control of pH in the sulphiting tower are both quite important in conversion efficiency, otherwise too much thiosulphate is formed. At present no attempt is made to recover SO_2 from the H_2S formed.

The possibility of recovering acetic acid from spent neutral sulphite liquor is under study by the National Council for Stream Improvement but the economics are unknown until a market survey can be made.

Semi-chemical mills operating in conjunction with kraft mills have been able to recover chemical by sending their spent liquor to the kraft recovery system. However, in order to recover all the semi-chemical spent liquor and maintain chemical balance in the kraft mill, the production of the kraft mill needs to be four or five times as great as that of the semi-chemical plant.

Stream Pollution

It has become customary to express pollution load in terms of population equivalent by using a conversion factor of 0.25 lbs. of the 5 day B.O.D. demand per person. This practice is misleading in that it infers spent pulping liquors are pollutants similar to untreated domestic sewage. Rather, they are a contaminent which robs the stream of oxygen.

The 5 day B.O.D. demand of semi-chemical waste varies widely, depending somewhat on the yield though not entirely so since the oxygen consuming components are dissolved from the wood first.

Comparing spent liquors from the various chemical pulping methods, on the basis of pounds of 5 day B.O.D. per ton, the acid sulphite has the greatest demand, about 1000 lbs. per ton of production, neutral sulphite semi-chemical without recovery varies from a low of 125 lbs. to a high of 375 lbs. and a kraft mill with recovery 400 lbs. Spent liquor from the first two is not toxic. All the liquors are dark colored and wash water from the pulp carries suspended solids, both of which are objectionable.

Various regulatory authorities have adopted a minimum requirement of 5 parts oxygen per million for a stream or body of water receiving the waste. In the absence of a recovery plant, this has led several mills to so control or distribute the discharge of acid sulphite spent liquors that the required oxygen level is maintained in the stream.

Impounding ponds for sulphite spent liquor have been used with success except in cases where seepage occurred. In one case the river was not protected and in another area wells were contaminated. Later installations have guarded against these faults and discharge from the pond is controlled by river flow.

Within the last few years, several successful installations of underwater distributing pipe lines have been made at sulphite mills. As far as is known, these are all on the West Coast. The latest installation is described in detail with all pertinent information of stream conditions before and after. *(6)*

One mill has been able to ameliorate the effects of pulping wastes on the stream by carefully controlled addition of sodium nitrate. *(7)*

While this discussion has necessarily been based largely on recovery methods and means of improving stream conditions designed for and applied by sulphite mills there appears no reason why the recovery methods would not be applicable, at least chemically, to neutral sulphite semi-chemical liquors. Whether recovery is economic or not will depend on individual mill conditions.

Since the oxygen demand of the spent liquor from semi-chemical pulping is so much less than that from the acid sulphite process, the maintenance of the required oxygen level in the stream should be easier and under proper conditions less costly.

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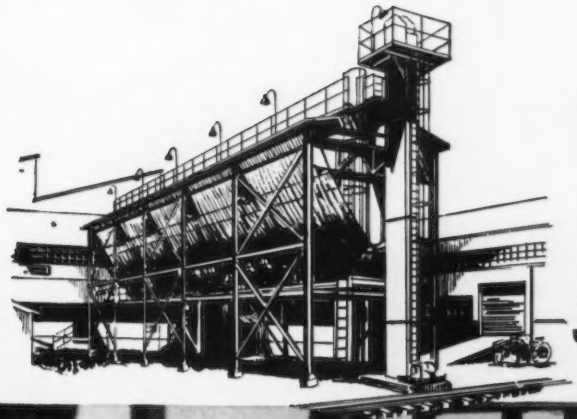

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Line drawing: Jeffrey Standard Bucket Elevator feeding storage bin.

Photo: Jeffrey Twin-Spiral Conveyor System handling finished cement from mill to railroad cars for bulk shipment.

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Jeffrey Standard Spiral Conveyors and Bucket Elevators are available in a range of types and sizes that meet practically every industrial requirement and operating condition.

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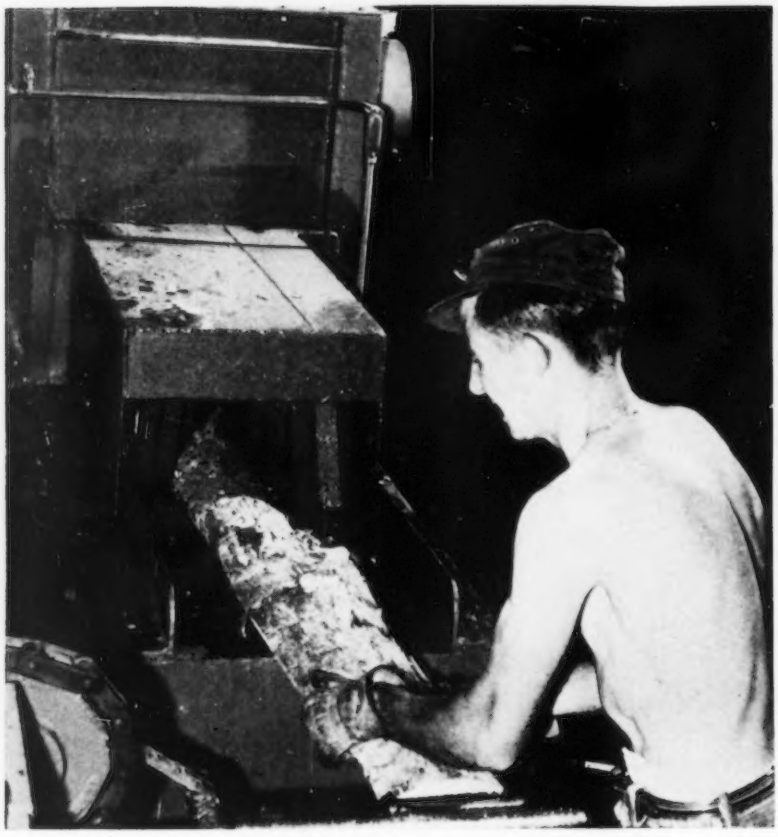

Slab Debarker Uses Water Jets at Lower Angle

An hydraulic debarking machine that has been especially designed for removing bark from slab wood, was designed by Leon Clancy and is now in operation at Clancy Forest Products Inc., Decatur, Ala. It was constructed by Jackson Industries, Birmingham, Ala. Clancy is offering additional units for sale to the industry in general.

The installation at Decatur barks purchased slab waste, which is then chipped for resale to pulp mills.

This debarker is said to feature two major departures from the design of previously available equipment. It is equipped with three water jets, each 900 p.s.i. These are set to strike the surface of the slabs at a 30 degree angle. The claim is that this setting effectively removes the bark without the possibility of wood damage and fiber loss that the customary 90 degree jets create.

The other innovation in this machine is the incorporation of firmly set rolls that guide the slabs top and bottom at both the infeed and outfeed ends of the debarker. These rolls also hold the slabs in steady position as they pass through the water jets.

The manufacturer states that the debarker will process five cords or more of slabs per hour. Water consumption is rated at slightly more than 400 g.p.m. at 930 pounds of pressure. The water is brought to the jets by a centrifugal pump that operates off a 260 hp. motor.

Further claims state that this model barker is priced to require a considerably lower investment than that required by equipment previously available. When used in conjunction with sawmill operations, the debarker-chipping operation will recover some $3.00 per thousand on the operation's stumpage costs.

Combination High Pressure Valve

The Atlas Type "F" Valve is a high pressure units that is a combination reducing and automatic relief valve. It is particularly designed for low capacity applications. The valve is a product of Atlas Valve Co., 280 South St., Newark 5, N. J.

According to the manufacturer, the valve can be used for initial pressures that run as high as 4000 p.s.i. and reduced pressures from 2000 p.s.i. down to zero p.s.i. in accurately controlled increments. The valve is spring loaded, diaphram operated, and can be utilized to reduce the pressure of air, oil, or water.

The built-in relief valve is said to open automatically to relieve excess as reduced pressure exceeds the setting. The valve is manufactured in the following sizes: ⅛-inch, ¼-inch, ½-inch, and ¾-inch.

Steam Trap With Only One Moving Part

Sarco Co., Inc., Empire State Bldg., New York 1, N. Y. has lately introduced the Sarco Themodynamic Trap, the design of which incorporates only one moving part—a solid stainless steel disc that acts as the valve head.

Advantages cited for this unit are maintenance-free operation, immunity to corrosive elements, same valve head and seat for all pressures to 600 p.s.i. and temperatures to 950 degrees F.

In operation, the trap functions as follows: condensate, air, and steam act directly on the disc valve, which then opens to discharge condensate and air, and then snaps shut to contain the steam. No mechanical devices are required to operate the trap.

The trap is recommended for installation on steam mains, headers, soot blower pipes, engine and turbine stop valves, and alternate heating and cooling applications.

Snake Bite Aid Kit For Southern Woodsmen

Of particular interest to loggers and woodsmen in the South is a new combination heavy duty pocket first aid kit and venex snake bite kit. The unit is known as the Ven-Aid Kit No. 56EH and is available from E. D. Bullard Co., 275 Eighth St., San Francisco 3, Cal.

It combines the necessary supplies to give complete treatment for snake bite with supplies for minor injuries. The items are packed in a heavy duty kit that is small enough to slip into the pocket. A canvas carrying case is optional at extra cost.

Mersize Reduces Fiber Flocculation, Improves Paper Quality

The wild formation and foam spots in the poor quality paper above are often caused by air in the stock. Air floats fibers to the surface and they gather in troublesome flocs. High foam index sizes, by stabilizing air in the stock, accentuate the problem.

If you're having formation and other foam troubles, switch to Mersize. It reduces foam at every point in the papermaking process ... and, at the same time, gives you the benefits of high sizing efficiency, low sizing cost.

Let Mersize PROVE why it is earning ever-increasing acceptance. Order a tank car today for use under your own production conditions.

Write us for information. MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, Box 478, St. Louis, Missouri.

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- Stock Pump Binding
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- Foam Spots in the Paper

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New! Mersize RM Dry ... Now Available

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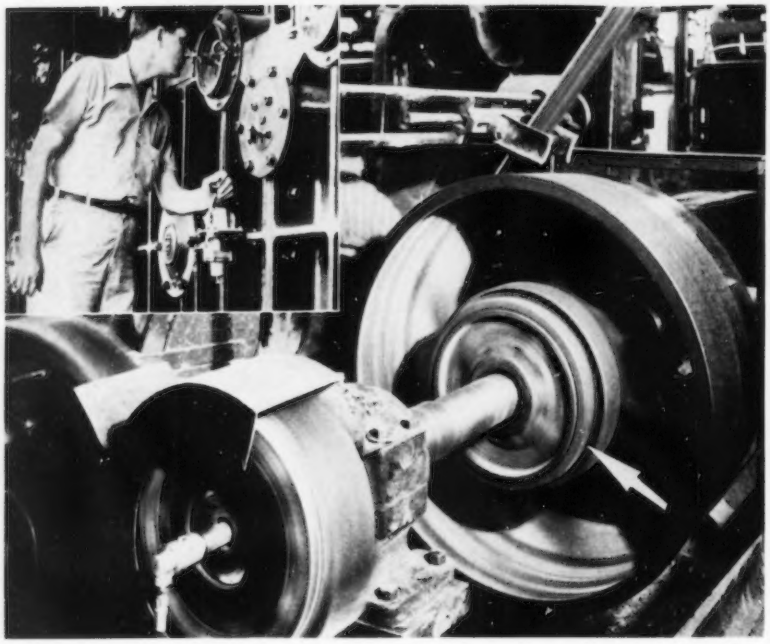


Air Clutch With Fast Response To Inching or Full Engagement

An air clutch, designed for quick action and ease of control, has been developed by the Dodge Manufacturing Corp., Mishawaka, Ind. Known as the new Dodge Air-Grip, it is said to respond instantly to a touch of the throttle because a minimum of air is used in the operation of the clutch. This sensitivity reportedly permits an operator to "inch" the clutch or to throw it into full engagement, as required.

As shown above, installed on dryer section drive of pulp-drying machine, the clutch (see arrow) is operated by air entering the drilled shaft through the rotary air union (lower left). Inset shows operator using air control valve on opposite side of the machine.

Disengagement of the clutch is achieved by the use of quick release valves built into the clutch itself. These valves are optional equipment available when extra fast disengagement is desired.

Other features of the clutch include provision for internal ventilation. This, plus the fact that the flexible air seal disc is so located that it does not come in contact with the heat generating plates, results in cooler operation and longer life, it is claimed. Provision is made for mechanical engagement of the clutch in case the air supply fails. The clutch occupies minimum space on the shaft. It interchanges with and can be used to replace other mechanical clutches in existing installations. It is available from stock in single and double plate models from 8.5 to 806 hp. per 100 rpm at 80 psi.

Improved Chart Integrator

A new model Rockwell Integrator, a device that mechanically computes the metered volume of gases, steam, or liquids from orifice meter charts, which is said to offer greater capacity, simplified change-over, speedier operation and increased resistance to wear, has been developed by the Rockwell Manufacturing Co., 400 N. Lexington Ave., Pittsburgh 8, Pa.

This electrically operated integrator features a counter setback assembly operating from the main calibration post that enables the operator to run many ranges of charts at any base pressure. As a result, range settings are almost infinite in number, as compared with the limited number of range holes which could be provided in the old style machine, it is said.

The same setback principle has been applied throughout the machine, eliminating the various separate pen centers and pressure range hole segments found in previous models, the manufacturer reports. Thus, when the machine is in calibration for one make of orifice meter charts, it is in calibration for all makes of charts that the machine will calculate. This feature simplifies operation and saves operating time by allowing the operator to change from chart to chart at will without the previously necessary check runs.

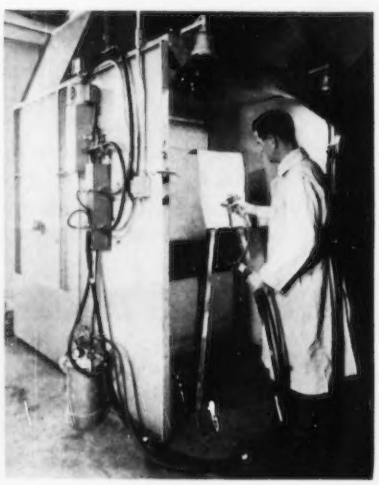
For greater resistance to wear, points of motion or pivot points have been set in ball bearings, thereby eliminating the shaft-through-sleeve wearing points of the older models, it is claimed.

Other advances claimed for the instrument include improved brake assembly; static and differential carriage assemblies redesigned for greater operating efficiency; new cam shifting design; centers individually calibrated on fitted drums, each independent of the others, connected only by the steel tapes which transmit motion.

Paint Heater

It is said that close control of organic material temperatures for the hot spray process can be achieved in the new line of paint heaters now offered by DeVilbiss Co., 300 Phillips Ave., Toledo 1, Ohio.

Material to be sprayed is heated in



a heat transfer unit located near the spray station. Exchange of heat from hot water to the material is positive and fast it is said.

Each heat exchanger will heat up to 32 ounces of material per minute. Only moving part is circulating pump.

"...business helps itself by promoting thrift among its own people."

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"Expanding the regular sales of U. S. Savings Bonds is essential to the continued success of our Government's sound money policy. Savings Bonds help people build security for themselves and stability for the nation's economy. A reserve in Bonds gives them the assurance to spend current income on homes, cars and other substantial purchases. Meanwhile, regular Bond buying goes on adding to their future buying power. Thus business helps itself by promoting thrift among its own people. The surest way to encourage an employee to save regularly right where he works is to sign him up on the Payroll Savings Plan."

Let's point up this statement by Mr. Baltz, head of one of the nation's outstanding thrift institutions and volunteer chairman of the District of Columbia Savings Bond Committee, with a few facts and figures:

- currently, more than 45,000 companies, large and small, representing every classification of industry and business, are encouraging national thrift through the Payroll Savings Plan.
- every month, 8,500,000 Payroll Savers in these 45,000 companies invest more than $160,000,000 in Savings Bonds.
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- never before has America had such a reserve of future purchasing power.
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A million new Payroll Savers by the end of 1954! That's the goal of those who believe that what is good for Americans is good for business. To do your part in reaching this objective, phone, wire or write today to Savings Bonds Division, U. S. Treasury Department, Washington, D. C. Your State Director, U. S. Treasury Department, will show you how easy it is to build a successful Payroll Savings Plan.

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Paper Trade Journal

Meter for Control Of Batch Liquids

The 3-inch Neptune Auto-Stop meter for automatic control of liquid ingredients fed to batching and blending processes is now extended to rates of flow as high as 300 gpm. The meter, manufactured by Neptune Meter Co., 19 West 50th St., New York 20, N. Y., features a double-trip or "cushioned" valve that slows down the rapid flow of the liquid an instant before it trips shut. This permits extremely accurate cut-off with no hydraulic hammer, according to report.

To operate, the tripping mechanism on the register is first set by pushing the buttons on the bottom of the register

until the number of gallons or pounds required by the formula shows up on the setting wheels in the little window just above the buttons. The main numerals are then cleared back to zero by turning the re-set handle on the right side of the register. The meter automatically cuts off the flow when the exact quantity of liquid is delivered.

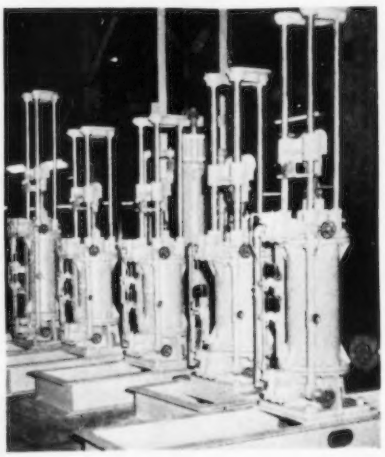
The numerals on the face of the meter keep pace with the flow, and provide a visual check when the delivery is finished. Flow can be stopped at any time by pressing the emergency stop button. This does not affect the meter reading or the stop setting. The delivery can be continued to its conclusion by reopening the valve, or the register can be reset for a new quantity before continuing.

Meter is of the positive displacement, nutating piston type, and is reportedly designed to handle more than 150 different industrial liquids. Bronze construction is used throughout.

New Style Air Cylinders

Air Miser Cylinders are being offered as an answer to the problem of serious losses from air leakage. The units are products of Sumner Iron Wks., P. O. Box 1006, Everett, Wash.

This new type cylinder consists of a top and bottom head, a cylinder barrel, piston, and rod. Two valves, one mounted on each head, control the cylinder's



action through air ports in the heads. Both top and bottom heads contain an exhaust cushion plug. As the piston advances, it strikes the cushion plug and cuts off the exhaust, thereby trapping the cushion. The piston is packed with neoprene cups designed to prevent air leakage around the cylinder.

The valves are of the poppet type, and are operated by remote control through a solenoid valve and push button. No moving parts are on the outside of the cylinder, and there are no air ports in the cylinder barrel.

Self-Priming Drum Pump

The Marlow Gem is a portable, electric powered pump available in either ¼ or 1/3 horsepower for pumping from 55 gallon drums. It is provided with ¾-inch garden hose adapters and will handle up to 8 gallons of liquid per minute through 50 feet of hose. It is

made by Marlow Pumps, Div. of Bell & Gossett Co., Ridgewood, N. J.

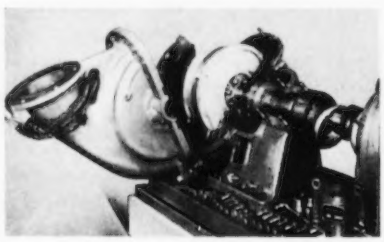
It will prime itself automatically and operate continuously even when placed as much as 15 feet above the liquid supply. Being a centrifugal pump, it has only one principal moving part: an impeller moving freely in the liquid, with no metal to metal contact. A self-lubricating mechanical shaft seal eliminates any need for pump lubrication, it is said.

Stock Pumps Designed With Hinged Casing

Goulds Pumps, Dept. PTJ, Seneca Falls, N.Y. has developed a series of paper stock pumps that are said to include features designed especially for easy maintenance. They are known as Fig. 3135 pumps.

The diagonally-split casing of the pumps is hinged to provide quick access to the rotating elements. Another feature is a telescopic joint in the discharge connection. This serves as an expansion joint and makes it possible to open the casing without disturbing the piping connections, it is said.

The manufacturer explains that the vertical discharge of the pump is located in the highest point of the casing to eliminate the possibility of air binding. Horizontal discharge can be obtained by rotating the discharge elbow 180 degrees.

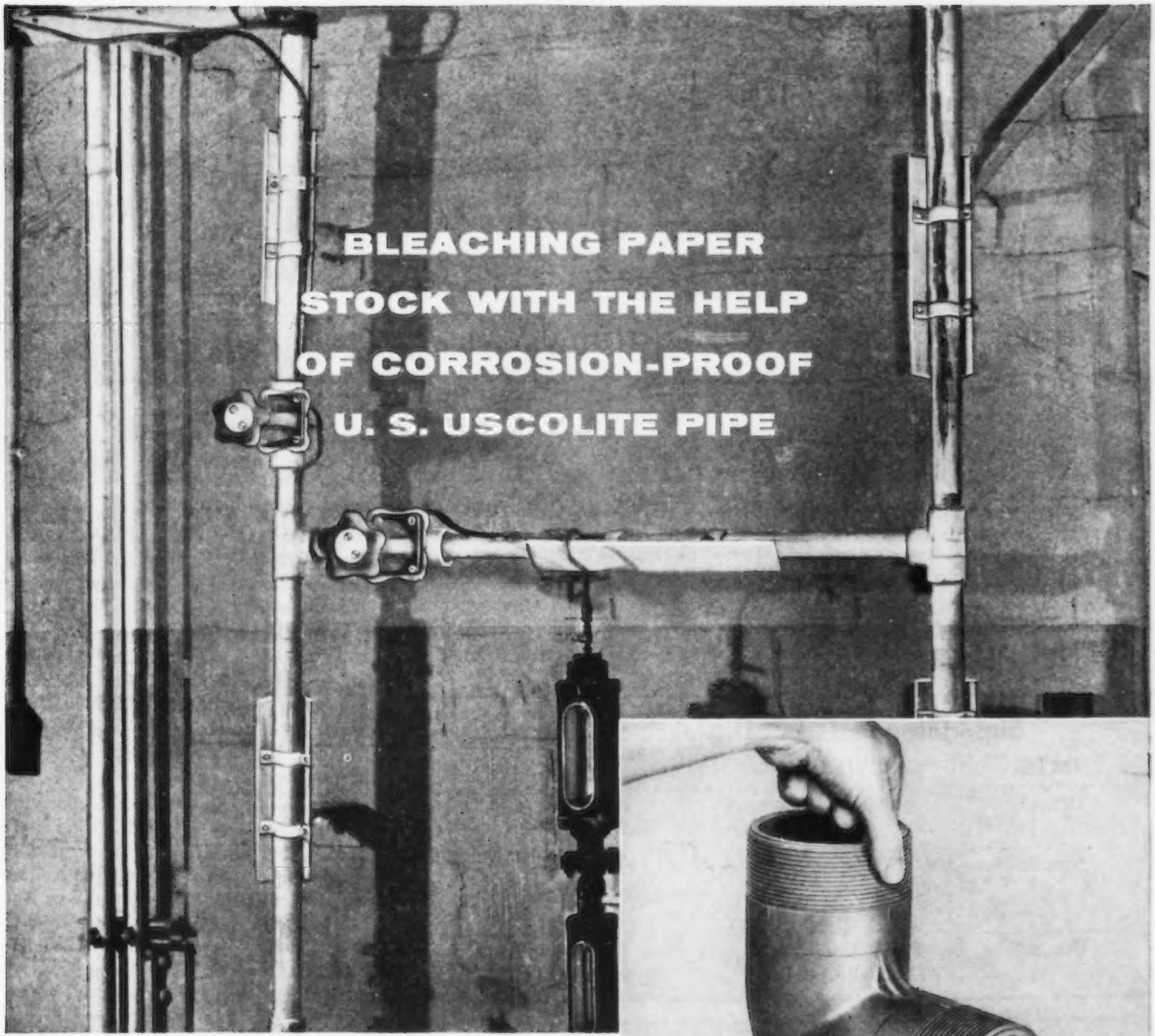


The vertical centerlines of both the suction and discharge are the same, a feature which eliminates the need for right- and left-hand pumps. This is said to simplify piping layout and minimize spare parts inventory.

The entire liquid end of this style pump is separate and thereby permits economical building in of special metals. It is available in bronze-fitted, all iron, all bronze, and in stainless steel construction.

The pump can be obtained in 3-inch, 4-inch, 6-inch, and 8-inch sizes, at capacity ratings up to 5000 g.p.m. and heads to 220 feet.

In servicing the pump, you first telescope the discharge elbow into the discharge connection by a jacking arrangement. Another jack raises the upper half casing, after which it can be swung back on the hinge with a chain fall, or, in the smaller sizes, with a rod or pipe through a cored hole in the casing.



Milk of lime rotameter, used in the control of the pH of the stock in a double-shaft mixer. The piping is U. S. Uscolite with Uscolite (Hills-McCanna) valves.

The paper mill, located in Pennsylvania, selected U. S. Uscolite® plastic pipe because it's immune to the corrosive chemicals used in the bleaching process, and requires *no upkeep*. The piping previously used just couldn't stand the gaff.

Made by United States Rubber Company, Uscolite is an extremely tough but lightweight thermoplastic pipe. It imparts no odor, taste or discoloration. It is threaded and assembled with ordinary piping tools—*without* special preparation. Uscolite is in use in thousands of installations in every industry where constant control of chemicals, acids or corrosion is a problem.

Uscolite pipe and fittings are made in the broadest and largest line of stock sizes on the market. Sizes run from ½" to 6".

For replacement or completely new piping, get in touch with any of our selected distributors or any of the 27 "U. S." District Sales Offices or write to address below. Immediate delivery of standard sizes and threaded fittings. The Hills-McCanna Uscolite valve is available for your piping assembly.

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NEWS OF ASSOCIATIONS

Conn. Valley Supt. In Joint Meeting With N.E. TAPPI

The Fall meeting of the New England Section of TAPPI was held in joint session with Connecticut Valley Division of the American Pulp and Paper Mill Superintendents Assn., Berkshire Inn, Great Barrington, Mass. on October 8 and 9.

Afternoon feature of the TAPPI program was an illustrated paper by Dr. A. F. Kirkpatrick, Research Division, American Cyanamid Co., Stamford, Conn., and another by John Bainbridge, Monsanto Chemical Co., Kalamazoo, Mich. Dr. Kirkpatrick's paper "Let's Look and See" discussed applications of microscopy to the paper industry which the speaker noted are drawing increasing interest. Mr. Bainbridge's talk on "Properties and Uses of Alum" was the first of a series on small materials in paper making.

Supts Elect John Murphy

Election of new officers for a two-year period marked the Superintendent's Program on October 9. First chairman John D. Murphy, machine superintendent, Chemical Paper Mfg. Co., Holyoke, Mass., succeeded American Writing Paper Corp.'s Edward McQuillan as chairman. Walter Dempsey, General Manager, Doeskin Products, Inc., Mt. Tom Div., became the new 1st vice-chairman; Thomas J. Flaherty, Supt., Lydall & Foulds Paper Co., Manchester, Conn., the 2nd vice-chairman. Richard A. McKay, Holyoke Wire Cloth Co., Holyoke, Mass. was named secretary-treasurer. Raymond E. Kilty, Staley Mfg. Co., became Connecticut Valley Division's representative to the Affiliates Committee.

Mill visits to Crane & Co., Bay State mill, Byron Weston Co., Dalton, or Columbia Box Board Mills, Inc., occupied morning hours; a golf tournament at Wyantenuck Country Club was held in the afternoon.

Bolton Award to Strathmore's Bill Holmes

Presentation of the 1954 Bolton Award for the Connecticut Valley Division and announcement of golf winners marked the dinner hour.

Certificate of participation in the cash awards and memento of the occasion—an inscribed Schaffer pen and pencil set—were presented to William Holmes, Strathmore Paper Co., by L. R. Mitchell of John W. Bolton & Sons, Inc., Lawrence, Mass.

Awards for the golf tournament went to Dave McGraw and Bill Powers who tied for low net of 72 for paper-makers class; to Fritz Malcolm and Joe Kellner who tied with 69 for Peddlers' Low Net. Low gross for mill men was won by Sam Seager with score of 79; for Peddlers by Joe Retallick with 80 score. Low gross open for 9 hole was won by Paul Sullivan's 38, John Waddock's 40. Nearest to the pin at the 11th hole was taken by Ken Peters at 8 feet. Bankers' Handicap winners were Charles Puliafico, Tom Desmond, Walter Dempsey, Ed Chalmers, Joe Aid, Charles Manning.

Superintendents Local Meeting Dates

DATE	DIVISION	PLACE
Oct. 21	Michigan	Hotel Harris Kalamazoo, Mich.
Nov. 16	Miami Valley (Joint-TAPPI)	Alms Hotel Cincinnati, Ohio
Dec. 3-4	Pacific Coast Div. (Annual Meeting)	New Washington Hotel Seattle, Washington

TAPPI Local Meeting Dates

DATE	SECTION	PLACE
November (day indefinite)	(Joint, Miami Valley Supt.)	Biltmore Hotel Dayton, Ohio
Oct. 18-20	Delaware Valley	Benjamin Franklin Hotel Philadelphia, Pa.
Nov. 4	Kalamazoo Valley	Hotel Harris Kalamazoo, Mich.
Nov. 9	Metropolitan District — Empire State	Fraunces Tavern Pearl and Broad Sts. New York, N. Y.
Nov. 9	Pacific Instrumentation	Bellingham, Wash.
Nov. 9	Lakes States	Riverside Country Club Marinetta, Wis.
Nov. 15	Chicago	Chicago Bar Assn. Chicago, Ill.
Dec. 10	New England	Roger Smith Hotel Holyoke, Mass.

National Meetings are shown under "Remember These Dates" on page 5.

Michigan Old-Timers' Meet

The Michigan Division of The American Pulp and Paper Mill Superintendents Assn. will hold its second meeting of the 1954-1955 season on October 21 at the Hotel Harris, Kalamazoo, Mich. This meeting is designated as an Old-Timers' Meeting.

Features of the program include presentation of a Life Membership Certificate of the National Association to Theodore Dunn of The Dunn Paper Co., Port Huron, Mich.; recognition of Everett P. Ingalls, Jr., S. D. Warren Co., Muskegon, Mich., as the Michigan Division winner of the Seventh Bolton Award Contest; and a talk by Dr. Marvin C. Rogers, Director of Research, R. R. Donnelly & Sons Co., Chicago, Ill.

J. M. Steiner of the Bolton organiza-

what do you want? in a freshly coated calendered sheet

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Glossier?

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FLOKOTE an exceptionally stable oxidized starch. Light in color. Opaque. Good flow characteristics that help to obliterate brush marks. High water retention that makes coatings more uniform. Excellent stabilizing properties for thermoplastic resins. In all, just the right combination of desirable properties for coating!

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SNAPPED AT KALAMAZOO MEETING

tion will speak briefly on the Bolton Award Contest in doing honor to Mr. Ingalls. The subject of Dr. Rogers' talk will be "Paper Printability." Dr. Rogers has expressed a willingness to answer any questions which may be presented to him from his audience.

Left: A. H. Nadelman, Head of Department of Paper Technology, Western Michigan College, Kalamazoo, Mich. Center: A. H. Nissan, Research Professor of Wool Textile Engineering, Department of Textile Industries, Leeds University, England. Right: Robert T. Elias, Associate Professor, Department of Paper Technology, Western Michigan College.

Kalamazoo TAPPI Hears English Research Specialist

Suggestions for improving felts and paper machines to obtain better drying of paper were made the evening of September 30 by an English research specialist in the field before the Kalamazoo Valley Section of TAPPI.

The speaker was Alfred H. Nissan, of the University of Leeds, Leeds, England. A former researcher in the paper field in England, he now does research on textile fabrics at the university, including work on dryer felts.

Dr. Nissan gave an extensive report on his calculations based upon a scientific approach to what happens to a square foot of paper web as it leaves the press and runs over the drier.

He explained that several difficulties lie in the way of these calculations, including complexity of the mathematical formulas involved, areas of ignorance in the field and the varying single physical properties of paper.

He broke down paper drying processes into cycles within four phases of the drying operation, establishing a cycle for each drying cylinder. He pointed out that findings checked very closely with actual machine operation in case of a high-speed newsprint machine. However, they varied greatly from those obtained with slow-speed machines, particularly comes out while the dryer felt is cover- as related to the amount of water which ing the paper.

Paper Executives Are Featured Speakers at Packaging Institute Forum

At the Packaging Institute's 16th Annual Forum to be held in the Hotel Roosevelt, New York, October 25 through 27, two well-known paper men will be featured speakers. They are A. G. Dreis, P. H. Glatfelter Co., and Malcolm Kimmelmann of Oneida Paper Products Inc.

teaching a wire to toe the line...

It's model 706, new Gilbert & Nash Hydra Guide with rotary palm* for wire, wet felt, and dryer felt service. Shown in actual use—now in its second year—at Sorg Paper Company, Middletown, Ohio, #6 machine, Smith mill.

High speed machines—even variable speed machines—are no handicap to model 706. Its guide roll moves only in a *horizontal* plane to avoid undue wire stretch . . . continuously corrects at a plus or minus 1/64 inch . . . eliminates over-correction or hunting.

Hydraulically operated by water pressure—where filtered water pressure is 40 to 60 lbs.—or by oil pressure with a pump of one gallon per minute capacity. Send for free Hydra Guide folder or, at no obligation, write for a Gilbert & Nash representative to call at your mill.

GILBERT and NASH APPLETON, WISCONSIN

*Manufactured and sold exclusively by The Appleton Machine Company

Their subjects will be "The Effect of Minute Paper Variations on Functional Paper Properties" and "Flexography on Films." They will also participate in the three-day discussions covering latest developments in every phase of packaging.

The President of the Packaging Institute is F. S. Leinbach, Secretary and Assistant General Sales Manager of Riegel Paper Corporation.

Career Planning Booklet

A "Guide to Career Opportunities in the Paper Industry" is the title of a booklet published this month. It is intended for the benefit of young people.

The 80 page monograph was prepared by Beloit College, Beloit, Wis., under a grant from Beloit Iron Works. It is based on more than a year of study and field investigation, and is said to be the most complete and comprehensive career handbook ever assembled for the paper field. It is being distributed by APPA to libraries, colleges, vocational schools, etc.

The importance of the paper and board industry in the American economy is discussed in Part I. The remainder of the book is devoted to job descriptions. The material was prepared for the guidance of students who plan to complete a college or technical education.

Free copies of the booklet may be obtained from American Paper and Pulp Assn.

Eastern Advances Two Executives

J. G. L. "Tom" Caulfield has been advanced to technical director and John C. Condon to purchasing agent and traffic manager of Eastern Corp., Bangor, Maine. These appointments became effective October 1.

Mr. Caulfield will assume the post vacated by Clifford Patch, who has reached retirement age and will devote his time for the next few months in the Technical Service Department working on special problems. He was graduated from the University of Maine; taught there for several years as well as at the New York State College of Forestry at Syracuse University, and has been associated with Eastern since 1945.

OBITUARY

J. P. Massie, vice-president of the Albermarle Paper Mfg. Co. and of Halifax Paper Co. died suddenly on Oct. 9th.

Mr. Masse became ill while attending a football game and died very shortly there-after

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POWRWORKER "26" Pallet Truck
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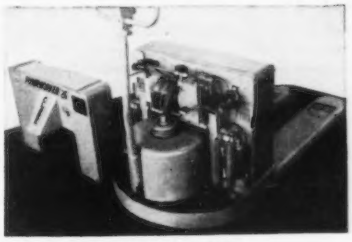
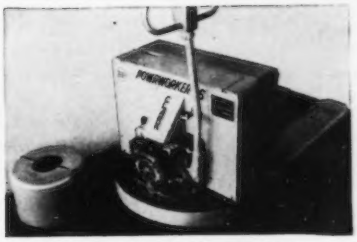
Also available as platform or tilting fork stacker

Ask him to compare these ACCESSIBILITY features!



1 HYDRAULIC SYSTEM EXPOSED IN 2 MINUTES . . .

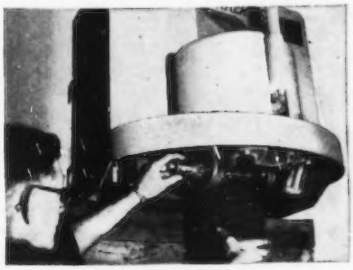
Remove 4 bolts and slip off the one-piece cover; the complete hydraulic sub-assembly is exposed. Hydraulic motor, pump, oil reservoir, valve assembly and self-aligning cylinders are immediately accessible and ample space is provided for quick inspection or removal.



2 POWER HEAD READY-TO-WORK-ON IN 2 MINUTES . . .

Split cover allows complete accessibility to the drive motor, brakes, resistor and control panel by merely removing 7 screws. Revolving head permits servicing any side of the power head without further dis-assembly. For major overhaul, the whole unit can be removed in 17 minutes.

*** The POWRWORKER "26" is only 26 inches longer than the load . . the shortest standard truck on the market!**



3 CHANGE DRIVE TIRE IN 12 MINUTES . . .

Standard Press-on type demountable tire is furnished as original equipment. Raise the truck 12 inches and loosen spanner nut which releases the axle shaft and the wheel drops out. Split wheel rim with spreader inserts allow immediate tire dis-assembly and re-assembly.

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Industrial Truck Division
CLARK EQUIPMENT COMPANY
Battle Creek 58, Michigan

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PRICES

MARKET WOOD PULP

Fourth Quarter Contract Prices Per Short Air-Dry Ton

	Delivered Basis		Varying Freight Allowances†		
	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$75.00/$80.00	‡$60.00/$95.00*	$78.00/$85.00§	$80.00/ —	§$77.50/$80.00
Kraft, Bleached	142.50/147.50	145.00/150.00	$142.50/ —		$142.50/ —
Kraft, Blchd. Hdwd.	140.00/ —		$130.00/ —		
Kraft, Semi-bleached	130.00/132.50	130.00/ —	$132.50/135.00§	132.50/137.50*	
Kraft, Unbl.	95.00/105.00	105.00/135.00	*105.00/110.00*	*105.00/135.00*	
Sulphite, Blchd.	140.00/ —	140.00/ —	$137.50/140.00†	140.00/ — *	$135.00/142.50*§
Sulphite, Unblchd.	120.00/ —	120.00/ —	$114.00/125.00†	120.00/125.00*	
Sulphite, Unbl. Gl'sn.		124.00/ —	†125.00/ —		
Soda, Blchd.	140.00/ —				

‡ F.o.b. Shipping Point. § On Dock Atlantic Ports. * Freight allowed.

NEW YORK RAG MARKET

New Domestic Cotton Cuttings

Delivered Mill Basis

	Per 100 lbs.
No. 1 White Shirts	$13.50/$14.00
No. 1 Unblchd. Muslins	15.75/ 16.25
Blchd. & Unblchd. Underwears	nominal
No. 1 Light Silesias	7.50/ 8.00
No. 1 Blue Overalls	7.25/ 7.50
Percales	6.00/ 6.50
No. 1 Light Prints	5.50/ 6.00
Suntan Khakis	5.50/ 6.00
Cottonades	3.75/ 4.00
No. 1 Washables	3.00/ 3.25

Old Domestic Cotton Rags

(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.
Mixed White	$2.75/$3.00
Cotton Pants & Overalls	2.00/ 2.25
Thirds and Blues, Repacked	1.65/ 1.75
No. 2 Roofing Rags	nominal

COTTON LINTERS

Memphis Market

F.o.b. Oilmills

		Oct. 5 Per 100 lbs.
Grade 1	n.a.	
2	1st cut—felting	$9.50/ $7.50
3		7.00/ 6.00
4		5.50/ 4.25
5		4.00/ 3.00
6	*2nd cut—chemical	3.00/ 3.00
7		3.00/ 3.00

*Based on 73% cellulose.

Bagging

(Prices to Dealers, F.o.b. N. Y.)

	Per 100 lbs.
Foreign Gunny	$3.75/$4.50
Foreign Scrap Burlap	3.00/ 3.75
Heavy Wool Tares	4.00/ 4.25
Austr. Wool Pouches	4.00/ 4.50
Domestic Manila Rope	4.50/ 5.00
Domestic No. 1 Sisal Strings	5.00/ 5.25

WASTE PAPER MARKET

Mill Prices, F.o.b. Car Shipping Point - Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal. See TRENDS.

	New York	Boston	Chicago	Los Angeles
	Oct. 11	Oct. 9	Oct. 4	Oct. 6
No. 1 Mixed Paper	$ 8.00/ 11.00	$ — / 10.00	$11.00/ —	$14.00/ —
No. 1 News	12.00/ 15.00	12.00/ 14.00	15.00/ —	13.00/ —
Overissue News	17.00/ 23.00	17.00/ 20.00	18.00/ 20.00	13.00/ —
Mill Wrappers	8.00/ 19.00	12.00/ 14.00	14.00/ —	13.00/ —
Old Corrugated Containers	19.00/ 22.00	19.00/ 20.00	22.00/ —	20.00/ —
Super Resorted Kraft Paper	45.00/ 50.00	50.00/ 60.00	40.00/ —	45.00/ —
New Double Kr. Ld. Corr. Cuts	42.50/ 47.50	42.50/ 47.50	42.50/ 47.50	35.00/ —
New 100% Kraft Corr. Cuts	55.00/ 60.00	55.00/ 65.00	60.00/ —	— / —
New Br. Kraft Env. Cuts	70.00/ 80.00	65.00/ 78.00	65.00/ —	50.00/ —
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	50.00/ 60.00	55.00/ —	45.00/ 50.00
New Br. Kr. Bag Waste Unprntd	65.00/ 75.00	63.00/ 65.00	65.00/ 70.00	— / —
No. 1 Groundwood Shvs.	25.00/ 35.00	25.00/ 30.00	20.00/ 25.00	27.00/ 35.00
White Newsblanks	65.00/ 70.00	60.00/ 65.00	45.00/ —	55.00/ —
No. 1 Soft Wht. Shvs., coated	65.00/ 80.00	70.00/ 80.00	65.00/ —	— / —
Hd. Wht. Shvs.	105.00/110.00	95.00/110.00	100.00/ —	95.00/ —
Hd. Wht. Env. Cuts	125.00/130.00	110.00/130.00	105.00/ —	105.00/ —
Col. Tab. Cards	45.00/ 55.00	— / 60.00	50.00/ —	28.00/ 35.00
Manila Tab. Cards, bales	80.00/ 85.00	80.00/ 90.00	80.00/ —	64.00/ — §
No. 1 Col. Ledger	40.00/ 45.00	40.00/ 50.00	42.50/ —	27.50/ —
White Ledger	57.50/ 65.00	65.00/ 68.00	55.00/ —	45.00/ —
Mixed Book & Mag.†	18.00/ 20.00	18.00/ 22.50	12.50/ —	— / —
No. 1 Rep'd. Hvy. Books ‡	27.00/ 30.00	25.00/ 35.00	25.00/ —	7.00/ 10.00

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% groundwood. § Deld.

PRICES OF MATERIALS

Aluminum sulphate:
- cml. bags, c.l. wks. .....cwt. $1.85 / —
- iron-free, c.l. wks. .....cwt. 3.55 / —

Casein, acid prec.:
- dom. sh. pt. cl. .....lb. .27 / .32
- Arg. ex. dock, duty paid..... .21 / .22
- New Zeal, do. ..... .25 / .26

Caustic soda:
- c.l. wks. solid, 76% ....cwt. 3.85 / —
- flak. & grd. 400-lb. drums, c.l. 4.25 / —
- liquid 50% tanks .. 2.70 / —
- liquid 70% tanks .. 2.80 / —

China clay:
- dom. air-float, c.l. wks. .. ton 10.00
- water-washed, lump, filler..ton 11.00
- coating .....ton 17.60 /30.50
- Imported, ex. ship .. short ton 16.00 /30.00

Chlorine:
- single-unit tanks, works cwt. 2.93 / —
- multiple unit, 2-5 cars per yr. 3.83 / 5.00

Formaldehyde:
- USP, inh. dms. c.l. wks....lb. .0666/ —
- l.c.l., E. wks....lb. .071 / —

Lime:
- hydrated bags, wks.....tons 14.50 /15.50

Gum rosin:
- K, M, N, drms, c.l. Savan, cwt. 7.80 / 7.90

Rosin size:
- 70%, gum & pale grds., tank cars, south, sh. pt. .....cwt. 6.70 / 6.80

Salt cake:
- dom. bulk, 100% anh. wks.ton 24.00 /26.00
- imp. f.o.b. Saskatchewan..ton 16.00 / {Cana. funds

Soda ash:
- light, 58%, bags, wks .. cwt. 1.65
- bulk .....cwt. 1.35

Sodium silicate, 40° Be.:
- tank-cars, wks. .....cwt. 1.00 / —
- drums, c.l. wks. .....cwt. 1.35 / —

42° Be. WW.
- tank-cars, wks. .....cwt. 1.60 / —
- drums, c.l. wks. .....cwt. 1.95 / —

Sodium peroxide:
- dms. c.l. E. of Miss. .....lb. .186
- l.c.l. do ..... lb. .191 / .201

Soybean, protein:
- chem. isol., wks. c.l. bags. lb. .25 / .25½

Sulphuric acid:
- 60° Be. cbys. c.l. wks. ..cwt. 1.75 / 2.00
- l.c.l. wks. .....cwt. 2.30 / 2.45
- tank-cars, wks. .....ton 16.30 /18.60

Sulphur:
- crude, c.l. mines, contract, long ton 25.50 /27.50
- f.o.b. vessels Gulf .....do. 27.50 /30.50

Sulphur dioxide:
- liquid, coml. cyl., wks. ....lb. .09
- multi-unit cars .....lb. .0535

Starches:
- corn, multiwalls, c.l. prod. plant:
- pearl ..... cwt. 6.39 / —
- white, dextrines .....cwt. 7.78 / —
- chlorinated .....cwt. 8.14 / —
- potato, Idaho, c.l. wks....cwt. 6.75 / —
- East, fr. all. 50 cents cwt.
- potato, Maine, f.o.b. wks. cwt. {Nominal 6.75 / —

Talc:
- domestic, sacks, c.l. wks. ..ton 25.00 /30.00

Titanium dioxide:
- anatase, c.l. deld. E. bags ..lb. .22½/ .23
- l.c.l. deld. .....lb. .23½/ .24
- rutile, c.l. deld. .....lb. .24½/ .25
- l.c. deld. .....lb. .25½/ .26

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A new 40-page manual gives a detailed review of modern high-density pulp bleaching processes with HYDROGEN PEROXIDE. Steep bleaching, continuous tower bleaching, pulp dryer bleaching, paper machine bleaching and steam bleaching, as applied to various pulps, are described. 11 schematic drawings illustrate the text. Send for Becco Bulletin No. 48.

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NEW LITERATURE

AWPA Manual of Recommended Practice. (Book) Technical handbook of value to preservative manufacturers, producers and users of treated wood, inspectors, chemists, etc. The revisions, or partial revisions, include in some cases only editorial changes, but most of the items involve new or revised specifications approved at the 1954 annual meeting of the American Wood-Preservers' Assn. Price $7.50, plus postage. Available at Association headquarters, 839 17th street, N.W., Washington 6, D.C.

Accident Rates—1953. (Booklet) Includes statistics for the pulp and paper industry in 1953 as a whole and broken down into four headings, as well as indexes of injury rate from 1935 to and including 1953. On the back page definitions of terms used are listed, as well as instructions on how to use the information provided in this pamphlet. Price to members 35c each in quantities of 1-99; 29c in quantities of 100 or more. Price to non-members double. National Safety Council, 425 N. Michigan Avenue, Chicago 11, Ill.

Anthrafilt-Hard Coal Filter Medium. (Bulletin) Contains foreword on the use of anthrafilt in filtration and then in 33 questions and answers tells what it is, instructions for using, etc. Also includes partial list of industrial users. Anthracite Equipment Corp., Anthracite Institute Bldg., Wilkes-Barre, Pa.

Better Packaging with Permacel Tapes. (12 p. Brochure) Lists specific uses and advantages of different types of packaging tapes, including cellophane, strapping, cloth, paper, etc. Permacel Tape Corp., Merchandising Service Dept., New Brunswick, N.J.

Bury Compressors. (Bulletin 222) Contains illustrated sales copy and sectional view of Type BPPE compressor, patented unit intercoolers and Bury by-pass unloading valve. Bury Compressor Co., Erie, Pa.

Centrifugal—Circulating and Coolant Pumps. (Bulletin 7074-D) Contains pictorial index, performance curves, cross-sections, dimensions, descriptive material, etc. for each class of pump. Also describes horizontal and vertical units in fractional and integral h.p. sizes, as well as cradle and flange mounted units. Ingersoll-Rand Co., 11 Broadway, New York 4, N.Y.

Cochrane Line. (Bulletin 6210) Briefly covers entire line of water conditioning equipment and specialties. Where more detailed booklets are available, the identification number is shown. Cochrane Corp. 17th below Allegheny Avenue, Philadelphia, Pa.

Gurley Testing Instruments. (Bulletin 1400) Describes procedures for testing paper stocks and other materials. Also contains illustrations and complete operating data. W. & L. E. Gurley, Industrial Div., 514 Fulton street, Troy, N.Y.

Hercules Dresinate—Emulsifiers, Detergents, Dispersants. (Bulletin) Provides technical data on the use of these resinates, three tables listing their characteristic properites in liquid, dry and paste form, as well as other tables including typical formulations. Hercules Powder Co., Wilmington, Del.

Permutit Pressure Filters. (Bulletin 2225-B) Includes specifications, operating characteristics, outline dimensions, and typical installation photographs, of

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"Paper - Rated" cotton linters, available to paper manufacturers through Railway Supply, are linters that have passed all the tests you yourself apply.

"Paper-Rated" linters are clean . . . kept free of foreign matter from the oil-mill, through transit, right to your mill. They have the correct staple length . . . the right color characteristics . . . the just-right degree of harshness you need.

Railway Supply can furnish "Paper-Rated" linters because it pioneered the use of linters in paper . . . worked with the mills to learn their needs. Our seven government licensed graders adhere to these standards in classifying all linters purchased for the paper mills. Only linters meeting the mills' own standards are "Paper-Rated."

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NEW YORK • CHICAGO • ATLANTA • CHARLOTTE • MEMPHIS • DALLAS • LOS ANGELES • PHILADELPHIA

pressure filters and accessories, which are now being used to remove suspended solids, such as dirt, turbidity, iron, oil and color. Permutit Co., 330 W. 42nd street, New York, N.Y.

Palmer Filter Bed Agitators. (Bulletin 10—3rd Rev. 7/1/54) Provides information on use and operation, specifications, data sheets, installation data, recommended end caps, general installation detail sketches, typical prints of actual installations and list of agitator installations. Palmer Filter Equipment Co., 822 E. 8th street, Erie, Pa.

Philippine and Far East Trade Director — United States — Overseas Edition. (Book) Revised and expanded it contains extensive listings of importers and exporters in the Far East, classified alphabetically and according to commodities. The United States Section has listings of exporters and importers of San Francisco, Los Angeles, Seattle and Portland. Added features are the transportation section, custom house brokers section, foreign freight forwarders and export packers section. Published by and available from Media International, 24 California street, San Francisco 11, Calif.

Ruberoid Asphalt and Asbestos Roofing and Siding Materials. (Catalogue) Contains illustrated sales copy, swatches showing different colors shingles, butts, siding shingles, roll siding, insulating sidings, Aristo-Bric, sidewalls are available in, as well as specifications and use for each product. Ruberoid Co., 500 Fifth Avenue, New York 18, N.Y.

Techniques That Produce Teamwork. (Book) Written by Warren H. Schmidt, Adult Education Assn. of the United States and Paul C. Buchanan, Psychologist, U.S. Naval Ordnance Test Station, Pasadena, Calif. An important study in group dynamics for school, hospital, association and industrial administrators. Through example and explanation they show how to develop team spirit even in large groups; how to successfully apply the system of overlapping staff teams; how this system develops the skills of subordinates and promotes loyalty to the organization. Price $2.50. Published by and available from Arthur C. Croft Publications, 100 Garfield Avenue, New London, Conn.

Yale Electrical Connector. (Bulletin 1518A) Contains illustrated sales copy, engineering drawings showing dimensions, and list of complete Yale connectors and parts. Yale & Towne Mfg. Co., Philadelphia 15, Pa.

Gold Bond quicklime for faster production

ALL AROUND THE CLOCK

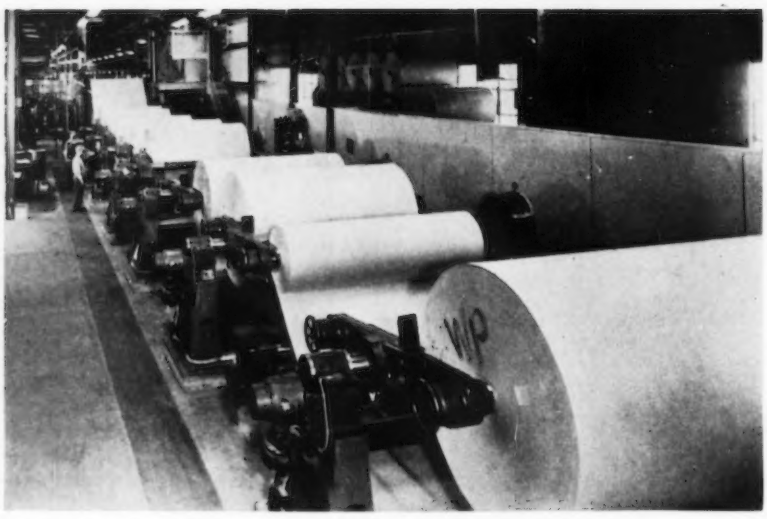
You can count on fast caustic soda production day in and day out when you use Gold Bond Quicklime. The reason: You get faster reaction with this *uniformly sized* Quicklime...it eases a common production bottleneck. Gold Bond's high quality is maintained by careful product control from the mine to your plant. Our technicians are available for free consultation service. Your Gold Bond Representative will give you full information.

Gold Bond
INDUSTRIAL PRODUCTS

NATIONAL GYPSUM COMPANY
BUFFALO 2, NEW YORK

The DRAPER Belt
DRAPER BROTHERS COMPANY
CANTON, MASS.

NEWS OF CONVERTERS OF PAPER AND PAPERBOARD



World's Largest Seven-Ply Laminator Revamped

The world's largest seven-ply laminator at the Upson Co., Lockport, N. Y., has undergone a complete revamping and modernization program. The project, under the direction of Henry W. Schmidt, Vice-President of the Upson Co., manufacturers of Upson panels for the housing industry, was engineered by Dilts Machine Works, Division of The Black-Clawson Company, and completed without interruption of deliveries by Upson.

This, the longest laminating line in the world, is 507 feet long. Modernization included replacement of the antiquated drive; revamping of the panel stacking method, a new panel take-off station, a stronger cut-off knife, rebuilding of the laminator. Also the addition of seven Dilts rotable reels with pasting roller for flying starts and transfer tables for easier roll handling and a Reliance VS Drive.

Marathon Plans New Converting Plant

The Marathon Corp. has announced plans for a new label printing and packaging specialty plant at Neenah, Wis.

Tentative plans call for a one story building with about 125,000 sq ft of floor space, located on a 50 acre tract to be acquired on the Northwestern Railroad's main line.

The new plant will augment the Menasha plant in producing food wrappers and allied products.

Growers Container Starts Up

Growers Container Corp., Salinas, Calif., which has been in the process of establishing a corrugated box plant, was to begin operations October 11. The interests in it are growers and shippers in the Salinas-Watsonville area, Imperial Valley, Yuma, and Phoenix areas.

AFP Enters Corr Box Field

Walter S. Johnson, President of the American Forest Products Corp., has announced its entry into the corrugated container industry. On a 20 acre site recently purchased in Newark, Calif., it will construct a modern building of approximately 125,000 sq. ft., housing an 87" corrugator, a gas-fired high pressure steam generator, and other equipment for the fabrication of corrugated boxes. Its subsidiary, the American Box Corp., has been engaged in the manufacture and sale of wooden containers since 1910. The American Box Corp. has warehouses and sales outlets extending all over the western states including Texas. The Newark site for the new corrugator operation was selected because of its central location in the Bay Area, as well as its proximity to the Sacramento, San Joaquin, Santa Clara, and Salinas Valleys. The plant is expected to be in operation within nine months.

THE MEAD SALES COMPANY
230 PARK AVENUE, NEW YORK 17, N. Y.
20 NORTH WACKER DRIVE, CHICAGO 6, ILL.

MEAD
pulp

DISTRIBUTORS OF WOOD PULP
BLEACHED AND UNBLEACHED
CHEMICAL AND MECHANICAL WOOD PULP

Paul Bunyan was so careful to prevent forest fires that whenever he wanted to smoke his pipe he would step over to one of the Great Lakes and stand in the middle of it while he lit up.

A reproduction of this incident from the fabulous life of Paul Bunyan—the seventy-eighth of a series—will be sent on request. It will contain no advertising.

NEWS OF SUPPLIERS

• BLACK-CLAWSON CO. has entered into an agreement with the F. W. Roberts Mfg. Co., Lockport, N. Y. for manufacture and sale of the patented continuous Roberts Grinder. Manufacturing, sales and service for the grinder has been assigned to the Shartle Bros. Machine Div., Middletown, Ohio for the United States. The same service is available to mills in other paper making countries, except Canada, Norway, Sweden and Finland through the sales and manufacturing facilities of Black-Clawson International, Ltd. with offices at 23-A Maddox St., London W.1, England.

Alamask *The original masking agent for kraft mill odor abatement.*

Abatement *Improved product design makes possible malodor abatement in gaseous and liquid effluents from sulphate operations.*

Assistance *"Alamask" and Rhodia's experienced engineering section can assist the kraft pulp industry in its study and efforts to abate malodorous sulfur compounds.*

Available *From Rhodia, Inc., New York, successor to E. I. duPont de Nemours & Co., Alamask reodorants.*

Based on your answers to 26 simple questions, our technical staff can tell you how Alamask will help you negate your mill malodors. Send for the questionnaire today.

Rhodia INC.

Rhodia, Inc., Industrial Reodorants (Alamask) Division
230 Park Avenue, New York 17, N. Y.
Please send the "Alamask Odor Abatement Questionnaire" to:

NAME_____

COMPANY_____

ADDRESS_____

PTJ

• DIAMOND ALKALI CO. has promoted two sales representatives to managerial posts at the company's national headquarters in Cleveland and its Chicago sales office respectively.

Kemble S. Lewis, for the past two years assistant branch manager of Diamond's Chicago sales office at 20 N. Wacker Drive, becomes sales manager of the Plastics Division. He will be responsible for polyvinyl chloride resin sales, reporting to A. L. Geisinger, vice-president and general manager of the division.

Succeeding Mr. Lewis as assistant branch manager in Chicago is Olin Smith, who has been a special staff assistant in the sales department at Cleveland since May, 1953. He will report to E. J. Mills, Chicago branch manager.

• SAMUEL M. LANGSTON CO. is constructing a two-story steel and brick addition to its Camden, N. J. plant and will have it ready for occupancy in November. The $250,000 structure will provide additional shop space and house Langston's executive and sales offices. The new building is being erected on the site of the company's original building first occupied in 1912.

• NATIONAL STARCH PRODUCTS INC. and Clinton Foods Inc., in a joint statement of the presidents confirmed that discussions are taking place looking to a merger of the Corn Processing Division of Clinton Foods with National Starch Products. No final agreement has been reached.

• B. F. GOODRICH CO., Industrial Products Division, Akron, Ohio, has named Willard Haas technical manager of hose.

Mr. Haas joined BFG in 1929 as a chemist in the company's general chemical laboratory. In 1933, he became a service compounder in the processing division. He was transferred to the hose technical group in 1937 as a hose construction engineer and has held various assignments in the hose technical department since then.

• MINNEAPOLIS-HONEYWELL REGULATOR CO. has purchased the assets of Heiland Research Corp. of Denver, manufacturer of precision scientific instruments and high quality photographic flash equipment.

The 20-year-old Denver firm will be operated as a new Honeywell division. The Heiland part of the name, widely known in the photographic industry, will be retained. The new division will continue to operate from its Denver plant and offices, with the present production, administrative and sales personnel.

F. M. Zorn

• WYANDOTTE CHEMICALS CORP., Wyandotte, Mich., has appointed F. M. Zorn technical service representative in the M. A. Division.

Mr. Zorn has been with Wyandotte for 15 years. In his new position, he will assist Wyandotte's customers in the handling and use of Michigan Alkali Division products.

R. C. Thompson

• JOMAC, INC., Philadelphia, Pa., has named Robert C. Thompson to serve as sales representative for Jomac rollers and other Jomac products for the graphic arts in the metropolitan New York district. Jomac's New York City sales office and warehouse is located at 155 Lafayette street.

• AMERICAN CYANAMID CO., Dyestuff Department, in Bound Brook, N. J., has added two new colors to its line of stilbene direct dyes. Both dyes, Pheno Fast Yellow 8G and Pheno Fast Yellow 6G, were designed primarily for beater dyeing in the paper trade.

Both colors are bright green-shade yellows. Pheno Fast Yellow 8G is an extremely green-shade yellow, differing from anything previously available, according to the company.

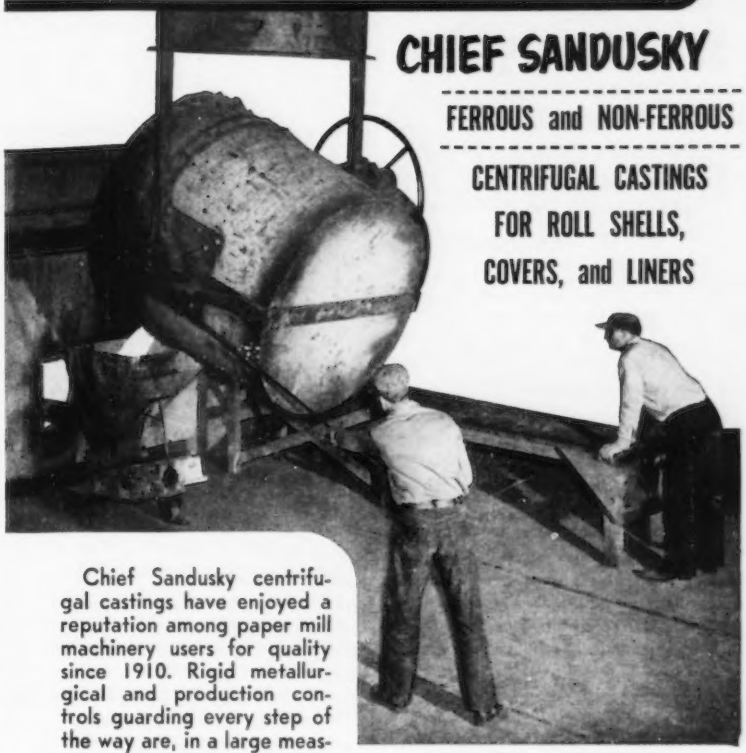
Both dyes are said to have suitable dyeing characteristics for napkin and tissue grade papers, and are alkali resistant, non-feathering and produce more uniform paper.

a Big Pour UNDER RIGID METALLURGICAL AND PRODUCTION CONTROLS

CHIEF SANDUSKY

FERROUS and NON-FERROUS

CENTRIFUGAL CASTINGS FOR ROLL SHELLS, COVERS, and LINERS



Chief Sandusky centrifugal castings have enjoyed a reputation among paper mill machinery users for quality since 1910. Rigid metallurgical and production controls guarding every step of the way are, in a large measure, responsible.

Accidents may be lucky or not. But neither kind has any place in the making of such highly specialized cylindrical castings for roll shells, covers, and liners.

From initial laboratory analyses through exacting production steps to delivery of the finished product, Chief Sandusky castings have been watched over by very particular experts—equipped with eagle eyes.

The makers of Chief Sandusky ferrous and non-ferrous centrifugal castings know that to hold the position of leadership they have earned, they must constantly search out improvements, develop better methods, and adhere to standards of highest quality.

This is all to the advantage of users . . . who agree that to get the best in cylindrical castings always specify "Chief Sandusky" to your machinery builder.

SANDUSKY FOUNDRY and MACHINE CO.

615 W. Market Street Sandusky, Ohio

W. B. Thompson

• RHODIA, INC., New York, has named Warren B. Thompson, formerly with E. I. du Pont de Nemours & Co., Wilmington, Del., sales representative in the Middle Atlantic states.

Mr. Thompson will be responsible for sales of aromatic chemicals to the perfume, toiletries and soap industries, and for sales of the products of Rhodia's Industrial Reodorant ("Alamask") Division. The latter division produces a series of reodorants for odor abatement in the pulp and paper, petroleum, rubber, sewage and industrial wastes, canning, fertilizer, pharmaceutical, brewing, leather, and textile industries.

AMERICAN PAPER AND PULP ASSOCIATION'S PAPER PRODUCTION RATIO REPORT

(Production as percent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

1954	Sept. 4 91.9	Sept. 11 73.4	Sept. 18 92.1	Sept. 25 96.0r	Oct. 2 94.0
1953	Sept. 5 94.8	Sept. 12 76.6	Sept. 19 97.2	Sept. 26 98.2	Oct. 3 96.5

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1953	94.5	94.6	94.4	92.7	93.9	93.8	82.2	94.7	92.7	97.2	94.6	82.8	92.3
1954	93.3	94.0	93.1	92.2	93.7	89.3	79.1	92.6‡					

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1947	1948	1949	1950	1951	1952	1953	1954
Year to Date	103.7	97.0	86.5	95.4	99.7	89.9	92.9	91.4
Year Average	101.7	92.1	83.7	95.8	98.0	88.6	92.3	

PAPERBOARD OPERATING RATIOS†

1954	Sept. 4 91	Sept. 11 70	Sept. 18 93	Sept. 25 92	Oct. 2 95
1953	Sept. 5 98	Sept. 12 76	Sept. 19 100	Sept. 26 98	Oct. 3 98

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1953	91	95	95	95	96	93	81	98	94	97	94	79	93
1954	89	89	90	88	90	89	74	92					

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint Exclusively.

Note: In the above tables *all* the ratios shown are on the basis of a normal 6 and 7 day capacity.

† Per cents of operation based on "Inch-Hours" reported on a 6-day basis to the National Paperboard Association.

• OLIVER UNITED FILTERS INC., manufacturers of industrial filters, pulp and paper mill equipment, pumps, and allied products, has appointed Ward H. Pitkin general sales manager. Mr. Pitkin will maintain his headquarters at the company's home offices at Oakland, California. He first became associated with Oliver United in 1925, and since then has been connected in various capacities in research, as head of the pulp and paper division, and most recently as assistant general sales manager.

W. H. Pitkin

• CLARK EQUIPMENT CO., Buchanan, Mich., supplier of automotive components, industrial materials handling trucks and construction equipment, has acquired inventories, engineering designs and products, tooling, trademarks and patents and certain other assets of The Torcon Corp., Ashtabula, Ohio, a producer of torque converters.

In taking over inventories and business-in-hand of Torcon, Clark Equipment

CHAS. T. MAIN, INC.
CONSULTING ENGINEERS
Process Studies, Design, Specifications and Engineering Supervision
PULP AND PAPER MILLS
Steam, Hydraulic and Electrical Engineering
Reports, Consultation and Valuations
80 Federal Street Boston 10, Mass.

THE RUST ENGINEERING CO.
PITTSBURGH 19, PA. • BIRMINGHAM 3, ALA.
Offices in Principal U.S. and Canadian Cities
Engineers Constructors
Complete Service for PULP and PAPER MILLS including all auxiliaries and byproducts.
Surveys • Reports • Design
Construction • Modernization

Engraved **ROLLERS**
Embossing Coating Printing
DIE & MILL and ROTOGRAVURE
Sample impressions from our extensive library cheerfully submitted upon request . . . Prompt, expert, attentive service.
ROLLS and MANDRELS MADE TO ORDER
Bigelow 3-2421-2-3 THOS. & GEO. M. STONE INC. Est. 1859 504 Mulberry Newark 5, N.J.

Parsons & Whittemore

London
Paris
Zurich
Stockholm
Oslo
Hamburg
Toronto
Buenos Aires
Sao Paulo
Rio de Janeiro
Sousse, Tunisia
Bombay
Edinburgh
Vienna
New York
Amsterdam
Brussels
Montreal

—the name for

pulp
paper
paper-making machinery
graphic machinery

the world over

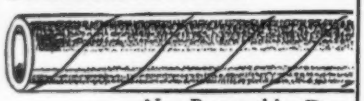
GROWING WITH THE PAPER

INDUSTRY SINCE 1853

LYDDON & CO.
35 New Bridge St., London EC4, England

PARSONS & WHITTEMORE
250 Park Avenue, New York 17, New York

MERKOR



Non-Returnable, Durable standard mill core.

GARTEX

Returnable and Non-Returnable extra strong mill core for regular and special needs.

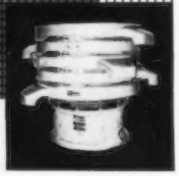
MADE TO YOUR SPECIFICATIONS
Write for samples and prices

MERCER

PAPER TUBE, INC.
655 WEST INGHAM AVE.
TRENTON, NEW JERSEY

Sales Offices:
NEW YORK OFFICE, 500 5TH AVE.
PHILA., PA., PHONE MARKET 7-3313
J. E. FRICKE CO.

SCREENING NEWS



Another production problem solved by **SWECO** Vibrating Screen Separator

Tennessee firm screens 70% solid coating mixture

SWECO vibrating screen separator screens coating color mixtures of clay and carbonate pastes containing 60-70% solids, viscosity of 75 poises, through 150 mesh cloth, for Tennessee firm.

Detailed information on request

Free screening analyses and recommendations

Engineers and constructors ... Manufacturers

SWECO

Southwestern Engineering Company
4800 Santa Fe, Los Angeles
JEfferson 7131 • Cable—SWECOLA

Please send Data File #38-219

Name_____
Firm_____
Address_____

Co. is not purchasing Torcon's capital stock nor is Clark assuming its liabilities, according to C. H. King, Clark vice-president. Clark also is not acquiring Torcon's plant facilities at Ashtabula, nor its basic machine tools.

Production operations for the manufacture of the torque converters will be transferred to Clark's transmission plant at Jackson, Mich., under the supervision of Roy McDermott, manager of the transmission division. A number of key personnel from the Torcon organization have joined Clark to continue their activity in this field. Financial considerations involved in the transaction were not disclosed.

A. M. Brooks

• COLUMBIA-SOUTHERN CHEMICAL CORP. announces that Arthur M. Brooks has joined the market research and development department.

Associated with the Raffold Process Corp. of Andover, Mass., since 1922, Mr. Brooks served as a vice-president of that firm during the past 24 years. He has specialized in the field of industrial chemistry and chemical engineering, particularly as applied to the pigment and paper industries and in the field of casein manufacture and leather finishes.

• LEWIS-SHEPARD PRODUCTS, INC., Watertown, Mass., has appointed Robert P. Ronowski as exclusive representative in the Wisconsin area. Mr. Ronowski became associated with Lewis-Shepard in the Chicago sales office in 1935 and has had many years' experience in the materials handling field. He has sales and service facilities at 312 E. Wisconsin Avenue, Milwaukee, Wis.

R. P. Ronowski

P. H. Dreissigacker

• FARREL-BIRMINGHAM CO., INC., Ansonia, Conn., has promoted Philip H. Dreissigacker to assistant chief engineer.

Mr. Dreissigacker joined Farrel-Birmingham in 1937.

• F. H. PAUL & STEIN BROS., INC., formerly located at 100 Gold street, New York, has moved its offices to 235 Fifth avenue. The new telephone number is MUrray Hill 4-6371.

• WESTINGHOUSE ELECTRIC CORP. has appointed A. C. Meixner assistant sales manager of apparatus products.

Mr. Meixner joined Westinghouse in July 1930. After completing the company's graduate student training course, he was assigned in September 1934 to the transportation and generator sales department, and in June 1941 he was named manager of the department's generator section.

Succeeding Mr. Meixner as manager of the generator sales section is C. M. Brinsley who has been in that section since 1942.

Mr. Brinsley also joined Westinghouse through its graduate student training course in 1933. He also held various sales assignments in the Pittsburgh sales office prior to 1942.

H. C. McDaniel has been appointed manager of technical information for Westinghouse.

Mr. McDaniel, formerly manager of technical publicity, will supervise both the technical publicity operations and the Westinghouse Engineer magazine. He replaces C. A. Scarlott, former technical information manager and editor of the Engineer, who has resigned to accept the position of manager of technical information services at the Stanford Research Institute, Palo Alto, Calif.

PAPER TRADE JOURNAL CLEARING HOUSE PAPER TRADE JOURNAL

RATES FOR ADVERTISING (PAYABLE IN ADVANCE)

$.75 cents per line (6 words to line) minimum charge $3.75
—Additional charge of 70 cents if box number is used

Situation wanted advertisements can be repeated for ½ rate

Space in this section can also be purchased at $5.00 per column inch—(1" x 2¼")

Address replies to advertisements appearing under Box Number in care of **PAPER TRADE JOURNAL, 15 West 47th Street, New York 36, N. Y.**

HELP WANTED

POSITIONS OPEN

We can place—Managers, supts. and assit. supts. for mills manufacturing board also rag and other fine papers, salary range up to $15,000 yr.; supt. printing and laminating; technical directors; stationery plant supt. Cylinder, Fourdrinier and Yankee machine foremen, also machine tenders; supervisor bag mfg. paper converting operations; quality control man; finishing foreman. Master mechanics, designers and draftsmen; project engineers; paper and board salesmen.

If you are available for a position in paper or pulp mfg. or paper converting, SEND US YOUR RESUME. It will be in confidence. No charge unless you accept employment through our Service.

CHARLES P. RAYMOND SERVICE, Inc.
Phone: Liberty 2-6547
294 Washington St., Boston 8, Mass.
O-15

WANTED
ASSISTANT PLANT ENGINEER

Must be familiar with paper mill maintenance and be able to direct steam and power generation, pulverized coal fired boilers, bleeders, back pressure and condensing turbine operation, also water filtration plant and auxilliary equipment. Plant located in New Jersey. Submit resume of qualifications, age, availability and salary requirements. Box 54-363 care Paper Trade Journal.
O-22

MECHANICAL ENGINEER for new and expanding pulp mill in Southeastern North Carolina. Must have had from 3 to 6 years' experience in the pulp and paper industry and be capable of doing layouts, design, cost estimating, reports, and engineering field work under general supervision only. Benefits include generous insurance, vacation, and retirement plans. Salary commensurate with qualifications. Please make resume as complete as possible and submit a recent photograph. Address Box 54-351 care Paper Trade Journal. N-5

GENERAL SUPERINTENDENT OF BOARD MILLS

Required to supervise operations of 3 paperboard plants located in the East. Broad experience needed in cylinder machine production of white patent-coateds, machine clay-coateds, bleached manila-lined chip, single manila-lined chip, full bending chip, and kraft-lined boards. Salary commensurate with qualifications. Send complete resume of background, education & earnings to Box 54-353 care Paper Trade Journal. N-19

WANTED

We have exceptional opportunities for technical graduates in our specialty paper mill research and development department. If you have had experience in this field, you can find a challenging opportunity here. Box 54-364 care Paper Trade Journal.
O-15-22

MAINTENANCE FOREMAN—for Fine Paper Mill located in Middle Atlantic States. Must be experienced in supervision of maintenance activities and capable of directing all maintenance functions. Progressive Company. Salary open. Send complete resume and recent snap shot to Box 54-358 care Paper Trade Journal. N-5

HELP WANTED

WANTED

Pulp Mill Superintendent for new board mill located in the South. Experience in the production of hardwood pulps made by the neutral sulphite semi-chemical process and a background of bleaching experience essential.

Replies will be kept strictly confidential. Submit age, education, experience, present and past positions. Address Box No. 54-344, care Paper Trade Journal.
O-29

PAPER CHEMIST

For position with nationally-known converter located in Metropolitan area. Background in plastics or adhesives desirable but not necessary. State age, experience and salary desired. Write Box C 577, 300 W. 43 St., N. Y. 36.
O-29

TECHNICAL SERVICE DIRECTOR

Excellent opportunity for Technical Service Director in a large progressive pulp and paper mill located in the Middle Atlantic States.

Prefer Ph.D. or M.S. in Chemistry or Chemical Engineering. Candidates must be at least 35 years of age, possess administrative potentialities and have industrial experience in the field of pulp, paper, coatings, quality control and other related problems.

Will be expected to assume full responsibility for the management of the Technical Services Division and conduct programs in Product Improvement and development, process and Equipment studies and train young technical graduates in phases of pulp preparation and paper making.

Remuneration will be commensurate with qualifications. Liberal company benefits. Replies held in strictest confidence. Address Box 54-328 care Paper Trade Journal.
N-5

WANTED—Superintendent Sanitary Tissue Converting Plant in Venezuela, S. A. Able to operate, repair, maintain machines and teach others. Wages open, based on experience. You must give all particulars in your reply to De Sola Bros., Inc., 111 Wall Street, New York. O-15

SALARIED POSITIONS $5,000 to $35,000. We offer the original personal employment service (established 44 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars. R. W. BIXBY, INC. 663 Brisbane Bldg., Buffalo 3, N. Y.
O-15

HELP WANTED

CHEMIST OR CHEMICAL ENGINEER

Opportunity available for Chemist or Chemical Engineer in an expanding pulp and paper mill located in the Middle Atlantic States. Age 25-35 years with several years experience in pulp and paper chemicals and fibers. Good salary with excellent opportunity for advancement. Send resume of educational background and industrial experience. All replies confidential. Address Box 54-338 care Paper Trade Journal.
N-19

Project Engineer

Midwest engineering and construction company seeking graduate mechanical or chemical engineer with several years mechanical engineering experience. Must have recent experience in supervising the design of pulp and paper producing facilities. Position involves coordination of design, assistance in sales pertaining to engineering services and the maintaining of good client relationships.

Position offers long-term employment with attractive salary, paid vacation and holidays, sick leave allowance and company-sponsored group insurance program.

If you feel your background qualifies you for this position please submit complete resume showing experience, education and salary requirements. All replies will be treated confidential. Interviews arranged with qualified applicants. Address Box 54-333 care Paper Trade Journal.
O-15

WANTED—CHEMICAL SALESMAN specializing in technical sales to pulp producers. New product with outstanding potential. Application proven. Excellent future for right man to head this specialized department for growing petrochemical company. Send complete resume to Box 54-352 care Paper Trade Journal. O-15

PULP TECHNICIAN—Experienced sulfite pulp operator to demonstrate use of important new chemical to pulp mills. Give experience and references. Correspondence confidential. Address Box 54-355 care Paper Trade Journal. O-22

WANTED — Production Manager Sanitary Tissue Converter Metropolitan Area. Age 35-45. Salary depending on background and experience $125-175 per week. Please give complete resume your reply. Address Box 54-356 care Paper Trade Journal. N-5

GROCERY BAG MACHINE OPERATOR—New York Metropolitan Area—experienced on Potdevin Sack and Self-opening machines to handle small night shift. Steady work; good salary; list references. Address Box 54-361 care Paper Trade Journal. O-22

FOR SALE

INDIVIDUAL ITEMS FOR SALE — IMMEDIATE DELIVERY

1—P & J 156" ball bearing equipped Fourdrinier Section, one set of presses, 10 dryers 48" diameter x 151" face, Pope Reel, 2 enclosed drives, line shafting and vacuum Pumps. This machinery is all rebuilt and could be the basis of a high speed Fourdrinier Machine.

1—76" Single Cylinder Machine, 1 press section, 8 dryers 48" diameter x 68" face, 1—24" diameter lead Dryer, 2 bowl reel, 1 drum winder, mortise gear drive line shafting with variable speed motor drive. Complete with pumps.

1—58" Single Cylinder Machine, 2 press sections, 13 dryers 36" diameter x 54" face, drum reel, shear cut winder, mortise gear drive, line shafting with variable speed motor drive 9 roll calender stack. Machine complete including pumps and agitator.

1—COWLS HYDRASLUSHER MODEL 10 SD 10.

1—NOBLE & WOOD MONARCH JORDAN ANTIFRICTION BEARINGS WITH 100 H.P. MOTOR AND CONTROLS.

INSPECT ON ORIGINAL FOUNDATIONS.

Ross Paper Machinery Co., 265 Passaic St., Newark 4, N. J.

TF

SITUATIONS WANTED

SUPERINTENDENT

Twenty-six years of practical experience manufacturing high grade folding boxboard, frozen food cartons, other sanitary food packages on six, seven, eight cylinders from sulphite, sulphate, groundwood, old paper stock. Aggressive, capable man. Excellent references. Address Box 54-274 care The Paper Trade Journal.

O-15

Technically trained man with over 25 years' experience in pulp and paper development work seeks challenging opportunity with mill or supplier. New England location preferred. Address Box 54-347, care Paper Trade Journal.

O-22

EXECUTIVE — Works Manager — Paper, Board and Converted Products; seeks challenging opportunity. Highly successful record in all management phases for high volume; profitable production. Employed. Address Box 54-233 care Paper Trade Journal. O-29

DEVELOPMENT — PAPER MAKER AND ENGINEER—Experience covers entire field of cylinder products, specializing in hydration and formation at a lower manufacturing cost with 100% operation. Address Box 34-342 care Paper Trade Journal. O-22

SUPERINTENDENT—42 years old, available at once. Twenty years experience on high speed Yankee Fourdrinier Machines making toilet tissue, facial, towels and napkins, including extensive experience on de-inking of waste paper. Some experience in sulphite specialty mill. Excellent cost and production record. Can supply references. Address Box 54-350 care Paper Trade Journal. O-29

FOR SALE

FOR SALE

Latex Impregnated Leather Grain Paper

WILL SACRIFICE LARGE QUANTITY

NU-BRICK PRODUCTS, INC.
7018 South St., Detroit 17, Michigan
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O-15

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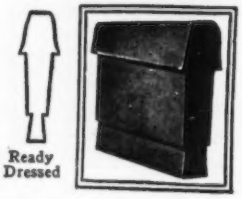

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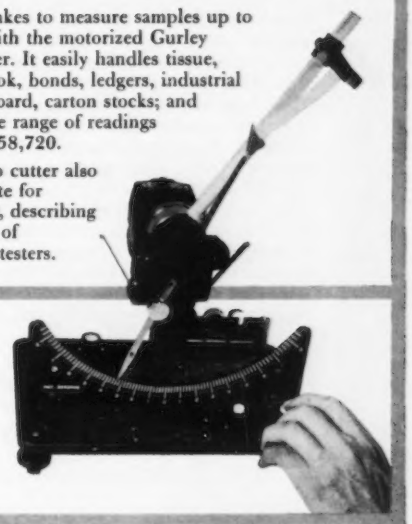

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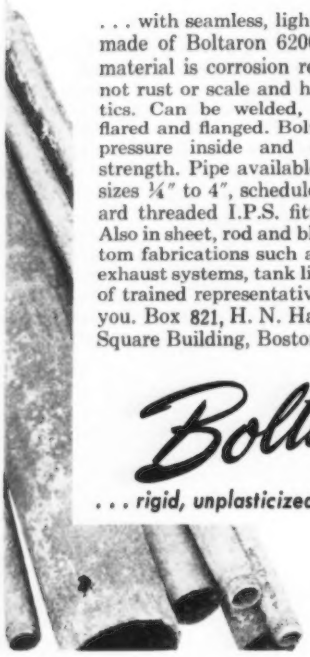

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The Bagley & Sewall Company
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Ross-Midwest Fulton Corp.
Shartle Bros. Mch. Co.

CLARIFIERS
Graver Tank & Mfg. Co.
Permutit Company

CLAYS
United Clay Mines

CLEANING MATERIALS
American Cyanamid Company, Industrial Chemicals Division
Antara Chemicals Division, General Dyestuffs Corp.
Arnold, Hoffman & Co., Inc.
Columbia-Southern Chem. Corp., Sub. of Pittsburgh Plate Glass Co.
Diamond Alkali Co.
The Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
Monsanto Chemical Company
Nopco Chemical Co.
Wyandotte Chemicals Corp., J. B. Ford Division

CLUTCHES
Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Dodge Mfg. Corp.
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Horton Mfg. Co., Inc.
Hudson-Sharp Mch. Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Shartle Bros. Mch. Co.

COARSE SCREENS
Bird Machine Company

COATING & BRIGHTENING AGENTS
Burgess Pigment Co.

COATING MACHINERY
Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Hudson Sharp Machine Co.
The Mayer Machine Co., Inc.
Moore & White Co.
Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corporation, John
Weber, Herman G., & Co., Inc.

COATING MATERIALS
American Cyanamid Company, Industrial Chemicals Division
Burgess Pigment Co.
The Dow Chemical Co.
E. I. du Pont de Nemours & Co., Inc.
B. F. Goodrich Chemical Co.
The Goodyear Tire & Rubber Company
Hercules Powder Co.
J. M. Huber Corp.
Koppers Company, Inc.
Monsanto Chemical Company
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.
Thiele Kaolin Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

COATINGS, CORROSION PROOF
Insul-Mastic Corp. of America

COATING ROLLS
Stone, Thos. & Geo. M., Inc.

COMPRESSORS
Allis Chalmers Mfg. Co.
Nash Engineering Co.
Read Standard Corp.
Roots-Connersville Blower Corp.

CONDENSATE FILTERS
Hungerford & Terry, Inc.
Permutit Company

CONDENSATION CONTROL
Insul-Mastic Corp. of America

CONDENSERS
Allis Chalmers Mfg. Co.
Permutit Company
Ross-Midwest Fulton Corp.
Westinghouse Elec. Corp.

CONDITIONERS
Vapo Systems Co.

CONDUITS
Aluminum Co. of America

CONSISTENCY REGULATORS
Bird Machine Company
DeZurik Shower Company
Pandia, Inc.

CONSULTING ENGINEERS
Cummins & Barnard, Inc.
Ebasco Services
Frank W. Egan & Co.
Ferguson, H. K., Company
Kalamazoo Sheet Metal Mfg. Co.
R. C. Mahan Co.
Main, Inc., Chas. T.
Rust Engrg. Co.
J. E. Sirrine & Co.
Vapo Systems Co.
John Waldron Corp.

CONTINUOUS DIGESTER
Pandia, Inc.

CONTROLLERS
Black Clawson Company

CONTROLS
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Airmatic Valve, Inc.
Johnson Corp.
Poirier Control Co.
Ronningen-Petter Co.
Shartle Brothers Machine Co.
Westinghouse Electric Corp.

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Dilts Machine Works
Egan, Frank W., & Co.
Hudson Sharp Machine Co.
Paper Converting Machine Co.
Potdevin Machine Co.
Ross Paper Machinery Co.
Waldron, John, Corp.

CONVEYORS
Black Clawson Company
Downingtown Mfg. Co.
Enterprise Company
Jeffrey Mfg. Co.
Link Belt Co.
Murray, D. J., Mfg. Co.
Ross Engineering Corp., J. O.
Shartle Brothers Machine Co.

CORES
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Mead Board Sales, Inc.
Mercer Paper Tube Co.
Sonoco Products Co.

CORROSION RESISTANT COATINGS
Insul-Mastic Corp. of America

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Hercules Powder Co., Inc.
Railway Supply & Mfg. Co.

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Beloit Iron Works
Black Clawson Company
Downingtown Mfg. Co.
Manchester Machine Co.
Stowe-Woodward Inc.
Tyer Rubber Co.

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The Bagley & Sewall Company
Black Clawson Company
Downingtown Mfg. Co.
Emerson Mfg. Co.
Farrel-Birmingham Co., Inc.
Herman Mfg. Co.
E. D. Jones & Sons Co.
Dodge Mfg. Corp.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works
Waldron Corp., John

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Whiting Corp.

CURL TESTERS
Testing Machines, Inc.

CUTTERS
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Beloit Iron Works
Black Clawson Company
Dilts Machine Works
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Gibbs-Brower Company, Inc.
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Hudson Sharp Machine Co.
Moore & White Co.
Perkins & Son, Inc., B. F.
Ross Paper Machinery Co.
The Sandy Hill Iron & Brass Works
The Smith & Winchester Mfg. Co.
Taylor, Stiles & Co.

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Downingtown Mfg. Co.
Manchester Machine Co.
Ross Paper Machinery Co.

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CYLINDER WIRES
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DECKLE SHOWERS
Ronningen-Petter Co.

DECKLE STRAPS
Stowe-Woodward Inc.

DECKLE WEBBING
Williams-Gray Co.

DEFOAMERS
Arnold Hoffman & Co., Inc.
Hercules Powder Co.
Houghton & Co.

DEINKING
Bird Machine Co.
Dilts Machine Works
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

DEINKING CHEMICALS
Antara Chemicals Division, General Dyestuff Corp.
E. I. du Pont de Nemours & Co., Inc.
Nopco Chemical Co.

DE-MINERALIZING EQUIPMENT
Hungerford & Terry, Inc.
Permutit Company

DENSOMETERS
Testing Machines, Inc.
W. & L. E. Gurley

DESIGN CONSTRUCTION
Ebasco Services

DETERGENTS
American Cyanamid Company, Industrial Chemicals Division
Antara Chemicals Division, General Dyestuffs Corp.
Arnold, Hoffman & Co., Inc.
Calgon, Inc.
Diamond Alkali Co.
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Company
Wyandotte Chemicals Corp., Michigan Alkali Div.

DEWAXING CHEMICALS
American Cyanamid Company, Industrial Chemicals Division
Antara Chemicals Division, General Dyestuffs Corp.
Arnold, Hoffman & Co., Inc.
Nopco Chemical Co.

DIGESTER CIRCULATING SYSTEMS
Sandy Hill Iron & Brass Works

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Bauer Bros. Co.
Blaw Knox Company
Chicago Bridge & Iron Co.
Graver Tank Mfg. Co.
Pandia, Inc.
Pusey & Jones Corp.
A. O. Smith Corp.

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Antara Chemicals Division, General Dyestuffs Corp.
Arnold, Hoffman & Co., Inc.
Calgon, Inc.
Diamond Alkali Co.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Rohm & Haas Company
Wyandotte Chemicals Corp., Michigan Alkali Div.

DOCTORS
The Bagley & Sewall Company
Bird Machine Company
Black Clawson Company
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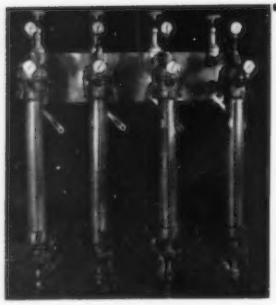

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Shartle Brothers Machine Co.
Simonds Saw & Steel Co.
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Manchester Machine Co.
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DRILLED SUCTION DRUM ROLLS
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Manchester Machine Co.
Ross Paper Machinery Co.

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Valley Iron Works Co.

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Moore & White Co.
D. J. Murray Mfg. Co.
Waldron, John, Corp.

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Geigy Co., The
General Dyestuffs Corp.

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ELECTRICAL PRECIPITATORS
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Hudson Sharp Machine Co.
Paper Converting Machine Co.
Potdevin Machine Co.
John Waldron Corp.

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Holyoke Machine Co.
Hudson Sharp Machine Co.
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Stone, Thos. & Geo. M., Inc.
John Waldron Corp.

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Raymond, Chas. P., Service, Inc.

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Nopco Chemical Co.
Rohm & Haas Company
Wyandotte Chemicals Corp.

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Rohm & Haas Company
Vanderbilt Co., R. T.

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Swenson Evaporator Co., Div. of Whiting Corp.
Westinghouse Electric Corp.

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Ronningen-Petter Co.

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General Electric Co.
B. F. Perkins & Son, Inc., Roots-Connersville Div.
Ross Engineering Co., J. O.
Westinghouse Electric Corp.

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Merrick Scale Mfg. Co.
Permutit Company

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Asten-Hill Mfg. Co.
Draper Bros. Corp.
Huyck & Son, F. C.
Knox Woolen Company
Lockport Felt Co.
Shuler & Benninghofen
Waterbury Felt Co.
Williams-Gray Co.

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Calgon, Inc.
Nopco Chemical Co.

FELT CONDITIONERS
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Downingtown Mfg. Co.
Mount Hope Machinery Co.
The Sandy Hill Iron & Brass Works

FELT EXPANDERS
Mount Hope Machinery Co.

FELT GUIDES
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Black Clawson Company
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gilbert & Nash Co.
Moore & White Co.
Mount Hope Machinery Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

FELT PRESERVERS
Mount Hope Machinery Co.

FELT SHOWERS
Ronningen-Petter Co.

FIBRE BOARD MACHINES
Black Clawson Company
Sandy Hill Iron & Brass Works

FIBRE GLASS
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Thiele Kaolin Co.
Vanderbilt Co., R. T.
Wyandotte Chemicals Corp., Michigan Alkali Div.

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John W. Bolton & Sons, Inc.
Ronningen-Petter Co.
Shartle Brothers Machine Co.

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Palmer Filter Equipt. Co.

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Holyoke Machine Co.
Hungerford & Terry, Inc.
Johnson Corp.
Moore & White Co.
Permutit Company
Ronningen-Petter Co.
J. O. Ross Engrg. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Walworth Company

FILTERS, LIME MUD
Bird Machine Company

FILTER SCREENS
Ronningen-Petter Co.

FINE SCREENS
Bird Machine Company
Sandy Hill Iron & Brass Works

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Crane Company
Grinnell Company
Pittsburgh Piping & Equipt. Co.
Shartle Brothers Machine Co.
Walworth Company

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Farrel-Birmingham Co.
Jeffrey Mfg. Co.
Shartle Brothers Machine Co.
John Waldron Corp.
Westinghouse Electric Corp.

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Norton Co.

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Walker Process Equipment, Inc.

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Shartle Brothers Machine Co.

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Hudson Sharp Machine Co.

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Williams Apparatus Co.

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Black Clawson Company
Downingtown Mfg. Co.
Manchester Machine Co.
Moore & White Co.
Ross Paper Machinery Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

FREENESS TESTERS
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Williams Apparatus Co.

GASKETS
B. F. Goodrich Co.
The Goodyear Tire & Rubber Company

GEAR MOTORS
Allis Chalmers Mfg. Co.
Elliott Company, Inc.
Westinghouse Electric Corp.

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Downingtown Mfg. Co.
Farrel-Birmingham Co.

GEAR REDUCER DRIVES
Link Belt Co.
Farrel-Birmingham Co.

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Black Clawson Company
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

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Dilts Machine Works
Hudson Sharp Mch. Co.
Lyddon & Co.
Parsons & Whittemore
Potdevin Machine Co.

GRAPPLES
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Owen Bucket Co.
Wellman Engrg. Co.

GRATINGS
Blaw-Knox Co.

GRINDERS
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Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Lobdell United Co.
Norton Company
Ross Paper Machinery Co.
The Sandy Hill Iron & Brass Works

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Norton Company
Simonds Abrasive Co.

GUIDES
The Bagley & Sewall Company
Beloit Iron Works
Black-Clawson Co.
Downingtown Mfg. Co.
Egan, Frank W., & Co.
Gilbert & Nash Co.
Moore & White Co.
Mount Hope Machinery Co.
Sandy Hill Iron & Brass Works
Waldron, John, Corp.

GUMMING MACHINES
Dilts Machine Works
Egan, Frank W., & Co.
Paper Converting Machine Co.
Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
Waldron, John, Corp.

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General Electric Co.
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Red-Ray Mfg. Co., Inc.
Ross Engineering Corp., J. O.
Valley Iron Works Co.
Westinghouse Electric Corp.

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John W. Bolton & Sons, Inc.

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HOSE (Air, Water, Suction, etc.)
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The Goodyear Tire & Rubber Company

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Arnold, Hoffman & Co., Inc.
Nopco Chemical Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

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Ronningen-Petter Co.

HYDRAULIC TURBINES & ACCESSORIES
Allis Chalmers Mfg. Co.
James Leffel Co.

IMPREGNANTS
American Cyanamid Company, Industrial Chemicals Division
Sun Oil Company
B. F. Goodrich Chemical Co.

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Dilts Machine Works

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Westinghouse Electric Corp.

INDUSTRIAL TIRES
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INDUSTRIAL TRACTORS
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Towmotor Corp.

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Taylor Instrument Cos.
Testing Machines, Inc.
Tracerlab, Inc.
Westinghouse Electric Corp.
Williams Apparatus Co.

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Insul-Mastic Corp. of America

JACKETS
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Beloit Iron Works
Downingtown Mfg. Co.
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Moore & White Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

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JORDANS
Emerson Mfg. Co.
Ronningen-Petter Co.
Ross Paper Machinery Co.
Shartle Brothers Machine Co.

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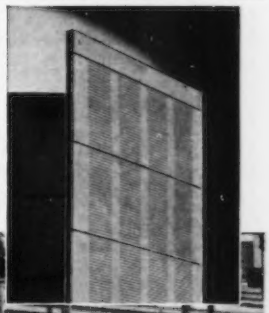

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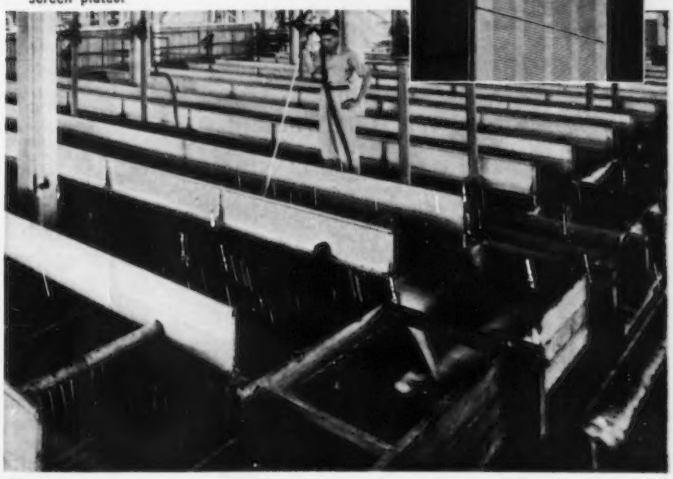

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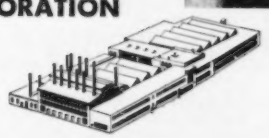

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Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

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John W. Bolton & Sons, Inc.
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E. D. Jones & Sons Co.
Moore & White Co.
Shartle Brothers Machine Co.
Simonds Saw & Steel Co.
Taylor Stiles & Co.
Valley Iron Works Co.

KNOTTERS
Black Clawson Company
Sandy Hill Iron & Brass Works

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Testing Machines, Inc.

LABORATORY DRIERS
Williams Apparatus Co.

LABORATORY EQUIPMENT
Appleton Machine Co.
Bauer Brothers Co.
Bird Machine Company
Cady & Co., E. J.
Dilts Machine Works
Downingtown Mfg. Co.
W. & L. E. Gurley
Egan, Frank W., & Co.
E. D. Jones & Sons Co.
Ronningen-Petter Co.
Shartle Brothers Machine Co.
Taylor Instrument Companies
Testing Machines, Inc.
Valley Iron Works Co.
Waldron, John, Corp.
Williams Apparatus Co.

LAMINATING MACHINES
The Bagley & Sewall Company
Dilts Machine Works
Egan, Frank W., & Co.
Hudson Sharp Machine Co.
Paper Converting Machine Co.
Potdevin Machine Co.
Ross Paper Machinery Co.
Waldron, John, Corp.

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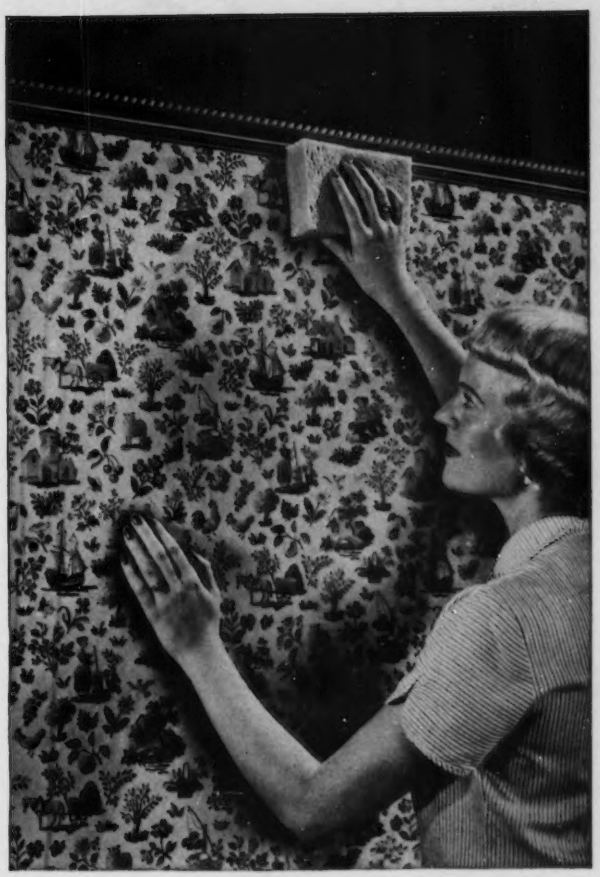

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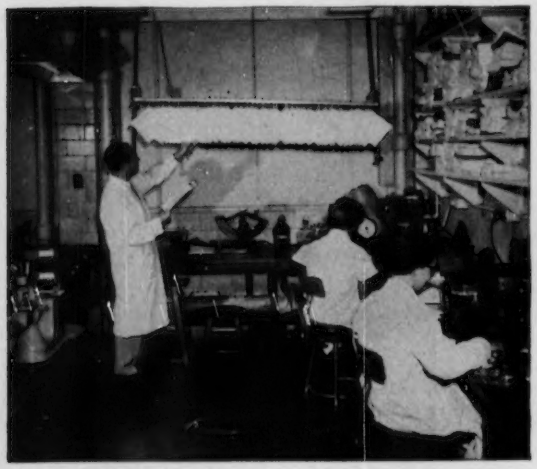

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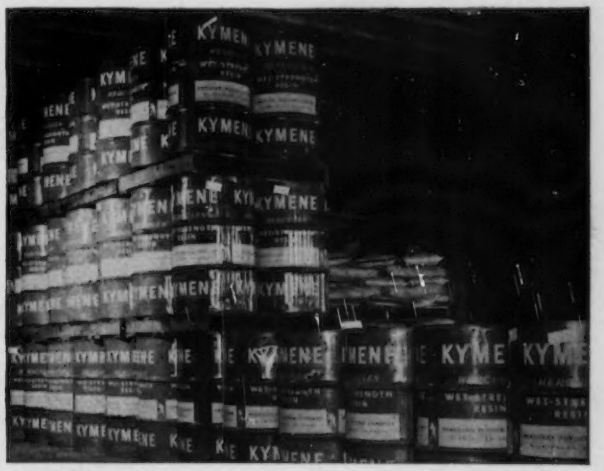

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